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Consumers' Research Bulletin

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Consumers' Research Bulletin

OFF THE EDITOR'S CHEST

THE CONSUMER has stumped the experts — at least a goodly number of them. It was freely predicted, particularly by government economists, that, long ere this, shortages of essential goods would make strict controls and rationing necessary. In the face of dire threats of an inflationary boom, consumers after a brief spending spree quit buying so extensively that several big-industry labor unions are crying "uncle" and demanding that armament production and conversion of factories to munitions production be stepped up in order to provide them with employment.

Although economists and financial analysts of pre-Keynesian training have steadily pointed out that consumers have the power to stem inflationary trends and to bring prices down by simply refraining from buying, their suggestions fell on deaf ears of those who were committed to the doctrine that the federal government should see that everyone received a "fair share" of the nation's production at a "just price." Just why consumers finally took matters into their own hands and refused to buy in the manner expected of them unless and until products of good value at reasonable prices should be offered is a question that gazers into the crystal ball of the economic future would like answered. A survey of 1000 American families undertaken by the survey research center of the University of Michigan in June 1951 indicated that five of seven consumers believed that this was a bad time to buy. Only one of three thought that there would be a shortage of certain products and few, if any, expected a shortage of a great many items.

In the face of persistent refusal of consumers to pay prices that they consider out of line for a wide variety of commodities, the gloomy and oft-repeated warnings by government officials of serious inflation by the end of the year seem a little ridiculous. But the economic planner looks upon the consumer, with his habit of upsetting the "best laid" plans, as a menace to a well-organized society. Furthermore, consumers are not organized as a pressure group and their votes cannot be bought in a block by political favors. It is possible to circumvent the consumer's desire for lower prices by shifting a still greater part of the nation's productive machinery and supply of raw materials to armaments and on first sight there would appear to be no political hazard involved. Stepping up munitions production is now being talked of by govern-

(Continued on page 24)

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Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry) and solely with the funds they provide, CR carries on tests and research on a wide variety of goods, materials, and appliances, and publishes the findings in CR Bulletin. Consumers' Research is a non-profit institution, and is organized and operates as a scientific, technical, and educational organization.

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Symbols used to indicate sources of data and bases of ratings: A—recommended on basis of quality; AA—regarded as worthy of highest recommendation; B—intermediate with respect to quality; C—not recommended on basis of quality; cr—information from Consumers' Research's own tests or investigations; **1, 2, 3**—relative prices, **1** being low, **3** high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price;** 50, 51—year in which test was made or information obtained or organized by the staff of Consumers' Research.

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¶*CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.*

★★★For a brief cumulative index of 1951 BULLETINS preceding this issue, see page 26.

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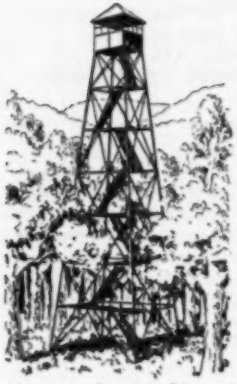


The Consumers' Observation Post

THE EFFECT OF TELEVISION on American life is a topic of much interest. Television Digest reports that big radio programs have lost a sizable section of after-dark listeners; the sale of books to adults has dropped in most cities, but newspaper circulation in television cities is increasing; movie attendance has dropped 20 to 40 percent since the advent of TV, but good films continue to draw good audiences. The Digest quotes an exhibitor whose comment sums it up very well: "You can't charge for mediocrity any more when everybody can get it at home for nothing." One trade that has been helped by television is the drugstore, where sales of weight-reducing preparations have increased. Seems the men are putting on weight from munching snacks and drinking beer, while watching television programs.

* * *

FLOWERS FOR THE SICKROOM should be carefully chosen so that they do not overwhelm the patient whom they are designed to cheer. Three-foot bouquets of such blooms as gladiolus are somewhat overpowering, comments Eva M. Smith in The New York Times. The bedside table has too limited a space for such huge floral offerings. Much more acceptable are the small sweetheart roses, miniature iris, or violets, or a small potted plant. Many florists will deliver flowers in a suitable container at a small additional cost and save the hospital attendants the trouble of hunting up a container, that may often be the wrong size. It is always advisable to purchase flowers in bud.

* * *

CHANGES IN CHROME TRIM OF AUTOMOBILES have been forced by government restrictions. In caring for the new cars there are special problems to be taken into consideration by automotive service outlets and car owners who wash their own cars, warns The Gasoline Retailer. On all chrome parts of new Plymouth and Chrysler cars, except bumpers and buffer plates, only clean cold water should be used, and they should be washed frequently during the first 90-day period. After that, a coating of wax may be applied periodically when necessary to maintain luster. The magazine reports that, with some of the plating processes on the newer cars, protection of the bright metal parts is now being afforded by use of a clear enamel. No metal polish or abrasive material of any kind should be used in such cases or the transparent enamel coating will be rubbed off. Inevitably, plated parts will get scratched or scuffed and the bright metal will turn dark in color, for the new plating processes are not so effective as those in use formerly.

* * *

THE HIGH COST OF PLUMBING is an item of great concern to the home builder, and also to the person having repairs or modernization work done in his house. In some localities there are various codes and regulations in effect that define the duties and requirements for plumbers and forbid any installations except those made by the duly licensed workmen. In Illinois, some years ago, the licensing provisions were held to be an illegal protection of a plumbing monopoly. The same charge has been made against the new Illinois plumbers' licensing bill, characterized as a health measure by its proponents and criticized by the opposition as making it costly for the poor man to get plumbing into his house. Administration of the new regulations is to be guided by a board composed of a master plumber, a journeyman plumber, and a representative of the Retail Hardware Association. The critics rightly question how the bill can be called a health measure without a physician on the board and point out that there is no provision for a representative of the public interest, either. Consumers in other states may also find on investigation that no one with their

point of view has a voice in the plumbing code administration in their section and they will very likely find that instead of being a health protective measure, it is actually a cover-up for a device intended to maintain the monopoly position of the master plumbers and the plumbing workmen of the community.

* * *

CARPETS AND RUGS made of blends of wool and various synthetic fibers, chiefly rayon, are being found in greater quantity in the retail stores. With respect to appearance, texture, color, and pattern, many of the new blends are quite attractive. Where nylon and similar fibers have been combined with wool, the durability or wearing qualities have been found excellent in particular cases. It is a little too early to generalize on the wearing quality of the rayon and the wool-combined-with-rayon rugs and carpets, but on a price basis there is no doubt that they will be widely sold in the future. Cotton rugs are inexpensive and can be dyed in attractive bright colors, but they are reported to flatten underfoot and had best be used in bathrooms and bedrooms.

* * *

WHEATCAKES AND SYRUP, maple or otherwise, are a hearty and inexpensive breakfast dish. Some people consider them too "heavy" for their digestive systems, but the combination is quite popular. An unhappy outcome, with nearly fatal results in two cases, from the syrup served with pancakes in a northern New York diner was recently described in detail in the Journal of the American Medical Association. It appeared that in the cases reported the diner prepared its syrup by adding maple flavoring to sugar syrup. Inadvertently, a jug of corning extract (containing large amounts of sodium nitrite) which the Journal reported was used in corning beef for the diner and in "freshening" hamburgers was substituted for maple flavoring. The mixture of corning extract and sugar syrup had caused serious illness indicated by cyanosis (blue coloration of the skin) in a number of patients who had eaten the stuff. The sickest patient was presumably the one who had consumed the most syrup, commented the medical report. It is not pleasant to think of the possibility of eating corned beef and hamburger on which such a potentially dangerous preparation is used even in small amounts for corning beef and "freshening" hamburger meat.

* * *

THAT CHARACTERISTIC ODOR OF A NEW CAR can be achieved by spraying the interior with a particular chemical, according to Automotive Digest. When we reported this curious fact several months ago and speculated on why one would want an old car to smell like a new car, several people wrote us to ask where they could get the stuff. We're sorry to say that we still don't know, but Automotive Digest recently reported that the chemical with this particular smell was known as R.200.350; that it sold for about $5 a pound; and that very little was needed to do the job. Have patience, men! One of these days some enterprising merchandiser will be offering it by mail in 2-ounce bottles complete with atomizer.

* * *

COLD DRINKS for a picnic or some other outing can be easily secured by an ingenious method suggested by Science Service. Pour the beverage into a plastic bottle and freeze it in the ice-cube chamber of the refrigerator. The plastic bottle will not break and the contents will remain cold for a considerable period after the bottle is removed from the refrigerator. Caution: Do not attempt to do this with glass bottles.

* * *

VITAMIN A has been found helpful in treating premenstrual tension, according to a report in a medical journal. Daily doses of 200,000 International Units of this vitamin administered in two doses, each of half that amount, one after lunch, the other after dinner, by Dr. J. Argonz and Dr. C. Abinzano produced significant improvement in the majority of 30 patients. Treatment was begun on the fifteenth day of the cycle and continued through the first day of menstruation; resumed fifteen days later and continued for a period of two to six months.

(The continuation of this section is on page 29)

Should Shampoos Cleanse and Condition the Hair?

CR's Tests of 20 Brands

ALTHOUGH an economical shampoo may be easily made by shaving a quarter of a cake of any good toilet soap into a pan containing one quart of hot water and allowing the mixture to simmer gently until the soap is completely dissolved, many women prefer to purchase some one of the numerous but more expensive shampoo preparations that are widely available in liquid, jelly, or cream form. According to a preference study of readers of one women's magazine, 52 percent used a liquid shampoo, 41 percent used a cream shampoo, and 7 percent used toilet cake soap. In addition to cleansing the hair, other features desired, as reported by another magazine, were that the product used rinse out easily, work well in hard water, give the hair gloss, remove dandruff, leave the hair manageable and not dry, and be easy to apply.

In an attempt to provide something more than just an efficient cleanser, however, the manufacturers of certain hair preparations may have gone too far in the other direction of providing a product that in addition to cleansing acts to condition the hair at one and the same time. In a study presented before the Society of Cosmetic Chemists, December 1950, by Dr. D. H. Powers and Mr. C. Barnett of Richard Hudnut Co., of tests of 21 shampoos, they found that several were less effective than plain water in cleansing ability. No doubt, all consumers would agree that a shampoo should leave the hair and scalp thoroughly clean and the hair soft and lustrous as well. On the other hand, it is possible for a shampoo to do too thorough a cleansing job. Some of the new synthetic detergents, for example, do such a complete job of removing the natural oil of the hair and scalp that the hair is left quite unmanageable after it is rinsed and dried, unless the synthetic detergent is one that has been blended with other materials such as lanolin to counteract the undesirable action.

The synthetic detergents no doubt find their greatest popularity in hard-water areas where in earlier days women resorted to the use of an acid rinse of vinegar or lemon juice to remove the scum formed by the lime and magnesium that are precipitated by the action of the soap on the minerals in the water. Furthermore, the synthetic cleansers lend themselves most readily to incorporation in the creamy emulsion form known as the cream type of shampoo which owes its popularity partly to the fact that it is easily applied without getting into the eyes. The cream type is also easy to rinse off. An emulsion lends itself readily to a formula in which ingredients such as lanolin can be blended smoothly to counteract the drying effect of the synthetic detergents. Lanolin or other "hair conditioning" materials tend to cling to the hair during the rinsing operation and thereby lessen the drying effect of the shampoo on the hair and scalp.

Cream shampoos may be made entirely of soap, may be combinations of soap and synthetic detergents, or may be based on the use of synthetic detergents without soap. When a regular shampoo is not available, shaving cream has been successfully used for the purpose.

The liquid shampoo, however, has held its share of the market in spite of the advertising claims for other detergents. According to an estimate by one journal of the trade, the liquid soap type represents 60 percent of the shampoo market and the greater part of this type of shampoo is coconut oil potash soap. Coconut oil soap is popular no doubt because of its quick and abundant lather. Copious lather has come to be regarded by the public as an index to cleansing properties, although with the advent of the new synthetic detergents this characteristic is not necessarily a measure of an effective detergent.

One drawback to the use of coconut oil, however, is that it may be irritating to some people. Olive oil or castor oil is sometimes added to counteract this irritating tendency, but such combinations have been noted to form a "heavier" lather, more difficult to rinse out, than the straight coconut oil type. Although it has been customary to advise thorough rinsing of the hair to remove all traces of the shampoo used, one trade expert has advanced the theory that residual soap film left on the hair makes the hair somewhat more manageable than does a residual film of synthetic detergent.

One of the best known journals in the soap trade has pointed out that most of the shampoo preparations on the market are merely variations of a few basic formulas. From time to time, however, products make their appearance that are touted as being something a little unusual or out-of-the-ordinary with respect to ingredients. No doubt the writers of advertising copy need to be provided at intervals with some new sales angle. "Egg" shampoos, for example, are colored yellow and may contain small amounts of powdered egg or albumin, but as even the trade journals admit, the external application of a small amount of egg in a soap is of no significant benefit to the hair or scalp. Oil of pine

tar and oil of tar are also added to a typical shampoo formula to give that "special something." In the excellent study, Medical Uses of Soap (published in 1945 by J. B. Lippincott Co.), it is pointed out that many dermatologists question the efficacy of tar soaps and that some people are sensitive to tar even when it is present in concentrations too small to be a primary irritant.

In order to determine the comparative merits of typical shampoos on the market, CR had 20 well-known brands subjected to a series of analyses and examinations including: determination of soap or detergent content, pH of aqueous solution, free fat content, percent ash and alkalinity of ash, active ingredients as determined by infrared spectrographic analysis, surface tension, Draves-Clarkson wetting time test, modified Ross-Miles test for foaming, and detergency test. All products were considered to have a pH value within a safe range for application to the skin. CR consultants hold that the best luster is obtained from a shampoo having a pH in the range of 6-8. The pH of a shampoo is given when it was higher than 8. The detergency test used was the method devised by Dr. D. H. Powers and G. Barnett of the Richard Hudnut Co., using wool yarn containing a wool grease content of 6 to 10 percent. A free fat content of 3 to 5 percent was considered advantageous for its hair conditioning value but only two brands fell within this range, *Hudnut's* and *Marlene's* shampoos. In rating the various shampoos on a comparative basis, particular attention was given to surface tension, Ross-Miles Lather Value, and wetting time tests. All of the shampoos tested will wash the hair, but their effectiveness varied over a considerable range in CR's tests. While some products gave better performance than others, none was so poor as to warrant a *C-Not-Recommended* rating.

The price ratings have been assigned on a price

Physical Test Data on 20 Brands of Shampoos

Brand Name	Surface Tension			Draves-Clarkson Wetting Time Test (Time in Seconds Unless Otherwise Noted)						Ross-Miles Test for Foaming (Lather Value)						Washing Test (Detergency)
	1%	0.25% (Dynes)	0.0625%	5%	2.5%	1.25%	0.625%	.313%	0.156%	Distilled H_2O 0 min.	Distilled H_2O 3 min.	Hard H_2O 50 ppm 0 min.	Hard H_2O 50 ppm 3 min.	Hard H_2O 300 ppm 0 min.	Hard H_2O 300 ppm 3 min.	% Grease Removal
Fitch	28.2	26.6	26.2	5	over 10 min.					17 cm.	15.5 cm.	5.5cm.	4.5cm.	0.5cm.	Trace	34.1%
Palmolive	26.2	27.0	28.0	9.5	45 33	35 6 min. 0 sec.				17 cm.	15.0	1.5	1.0	-	-	30.6
Lava	27.0	25.0	26.2	6	6	15 13 sec.	0.5% 45			15%	14.0	13.5	13	-	-	21.3
Halsified	27.2	27.2	27.2	13	9 min 42sec.	over 25 min.				15.5	14.0	5.5	3.5	-	-	33.2
Packer's	26.6	25.4	25.8	5	6	7	17	9 min. 0 sec.		17.0	16.0	16.5	15.5	-	-	13.5
Conti	31.2	29.0	26.4	5	5	11	32	3 min. 37 sec.		16.5	15.0	14.5	13.5	0.5	Trace	3.5
Wildroot	29.5	30.0	34.4	18	25	45	over 25 min.			5.5	4.0	7.0	4.5	6.5	5.5	28.0
Kreml	30.4	30.2	31.2	12	15	15	24	60	25 min.	17.0	16.0	16.5	15.5	2.5	1.5	8.5
Abstraction	30.6	29.0	29.0	10	11	13	33	over 25 min.		18.5	16.5	13.0	12.0	-	-	20.0
Marrow's	26.8	29.0	29.6	5	10	15	1 min. 26 sec.	13 min. 20 sec.		7.0	6.0	6.0	5.5	-	-	15.2
Brock's	28.8	29.0	28.2	5	6	10	24	50	20 min.	14.0	13.5	12.5	11.5	9.5	3.0	23.6
R. Hudnut	29.5	30.9	31.6	10	19	39	1 min. 7 sec.	5 min. 13 sec.		9.5	9.0	7.0	6.0	6.0	4.5	36.1
Prell	24.0	24.4	26.0	1	6	9	13	29	4 min. 16 sec.	21.5	19.5	19.0	17.5	3.0	3.0	35.5
Halo	27.6	27.5	29.3	7	17	23	1 min. 6 sec.	9 min. 54 sec.		17.0	15.5	17.0	16.0	17.0	16.5	42.6
Breck	23.0	26.4	25.8	1	4	9	16	35	5 min. 47 sec.	20.5	18.5	10.5	9.5	3.0	2.5	4.4
Toni	28.6	31.0	33.4	-	21	33	60	2 min. 34 sec.	over 25 min.	18.5	16.0	16.5	16.0	10.5	9.5	35.8
Rayve	29.0	31.6	31.2	-	18	25	79	3 min. 49 sec.	over 25 min.	14.0	13.0	17.0	13.0	11.0	9.5	32.2
Lustre Creme	30.2	29.6	30.6	-	15	26	73	3 min. 55 sec.	over 25 min.	19.5	17.5	6.5	5.5	5.0	4.0	22.5
Marlene's Hair Waving	28.0	28.0	35.1	-	18	24	61	3 min. 32 sec.		16.5	16.0	17.0	15.5	5.5	4.0	53.4
Helene Curtis	33.5	33.5	33.4	-	20	53	82	8 min. 32 sec.		12.0	11.0	4.0	1.5	4.0	1.0	48.8

Table I *— In rating the shampoos the products were classified as A. Recommended that showed a surface tension of less than 30 dynes in all three concentrations; that had a Draves-Clarkson wetting time of 25 seconds or less in a 1.25 percent solution; and ability to lather in hard water of 300 ppm. hardness. The percentage of grease removal was not included as a factor in the ratings since it is not clear how much grease removal is desirable for best manageability of the hair. The heading of the middle column (50 ppm) of the Ross-Miles Test should read Moderately Soft H_2O.*

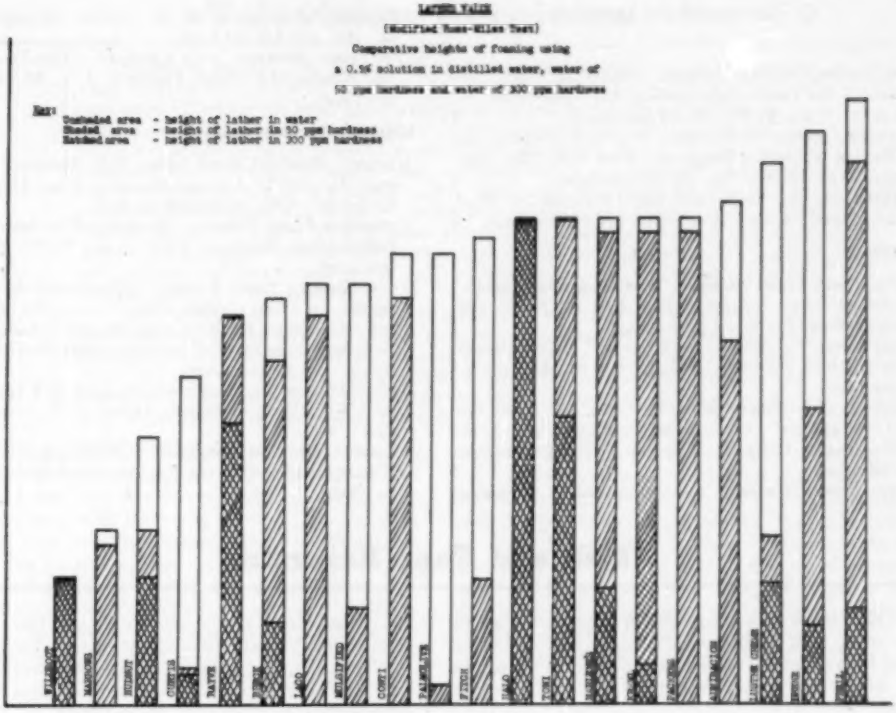

LATHER TABLE
(Modified Ross-Miles Test)
Comparative heights of foaming using
a 0.5% solution in distilled water, water of
50 ppm hardness and water of 300 ppm hardness
Key:
Unshaded area - height of lather in water
Shaded area - height of lather in 50 ppm hardness
Hatched area - height of lather in 300 ppm hardness

Table II *— The amount of soapsuds (measured by height of lather, in the laboratory) is a rough guide to indicate that sufficient soap is being used. With synthetic detergents, however, the situation is somewhat different. Washing tests have shown that some sudsless solutions remove soil under certain conditions better than others that give abundant foam. Consumers, however, have been conditioned to associate lathering properties with cleansing ability and have a preference for a rich lather. The amount of foam is, therefore, likely to provide some measure of a product's economy in use; the user will tend to apply the soap or detergent solution until he has worked up a lather of the desired amount, and that amount will vary according to the foaming properties of the various brands. Thus it is that, to some extent, the better the foaming properties, the farther a given amount of the product will go in the shampooing process.* (Water *in the "Key" refers to water of zero hardness — distilled water.*)

per fluid ounce or equivalent basis, and not on the basis of the relative quantities of the shampoo required to do an effective job of cleansing (which will vary with the condition and nature of the hair and the hardness of the water available. Several of the soaps would not lather at all in "hard" water of 300 parts per million hardness value).

A. Recommended

Soap

Laco Genuine Castile Shampoo (Laco Products Inc., 4201 Pulaski Highway, Baltimore, Md.) 12 oz., 79c. pH 9.1. A pH in the range of 6-8 is considered desirable for best luster. Not suitable for hard-water areas. **1**

Cream

Prell (Procter & Gamble, Cincinnati) 3 oz., 89c. **3**

Liquid (other than soap)

Breck Regular Shampoo "for Normal Hair" (John H. Breck, Inc., Springfield 3, Mass.) 1 pt., $1.75. **2**

New Drene Shampoo, "for complete hair beauty" (Procter & Gamble, Cincinnati) 6 oz., 79c. **2**

Halo Shampoo (Colgate-Palmolive-Peet Co., Jersey City, N.J.) 6½ oz., 89c. Claims "Soaping dulls hair — Halo glorifies it!" considered exaggerated. Showed best lathering quality in very hard water of all shampoos tested. **1**

B. Intermediate

Soap

Palmolive Shampoo (Colgate-Palmolive-Peet Co., Jersey City, N.J.) 8 oz., 47c. pH 9.5 (see comment under *Laco*). **1**

Conti Castile Shampoo (Conti Products Corp.; J. B. Williams Co., 420 Lexington Ave., N.Y.C.) 10 oz., 89c. pH 9.3 (see *Laco*). **2**

B. Intermediate (cont'd)

Fitch Dandruff Remover Shampoo (The F. W. Fitch Division of the Grove Laboratories, Inc., 2630 Pine, St. Louis) 12 oz., $1.19. pH 9.6 (see *Laco*). 2

Mulsified Cocoanut Oil Shampoo (The R. L. Watkins Co., Division of Sterling Drug, Inc., New York City, Rahway, N.J.) 10 oz., 79c. pH 9.2 (see *Laco*). 2

Packer's Shampoo "with Olive Oil" (Packers Tar Soap, Inc., Mystic, Conn.) 5 oz., 59c. pH 9.2 (see *Laco*). 2

Cream

Helene Curtis Creme Shampoo "with Emulsified Lanolin" (Helene Curtis Industries, Inc., 4401 W. North, Chicago) 8 oz., $1. pH 8.5 (see *Laco*). 2

Lustre-Creme, "a shampoo with lanolin" (Kay Daumit, Inc., 919 N. Michigan, Chicago) 10 oz., $2. pH 8.7 (see *Laco*). 3

Marlene's Hair-Waving Shampoo, "curls and waves hair as it shampoos" (Distributed by Marlene's, Inc., 349 W. Ontario, Chicago) 4 oz., $1. Claims considered misleading. 3

Rayve Creme Shampoo, "contains lanolin" (Pepsodent Division, Lever Bros., 141 W. Jackson, Chicago) 3.6 oz., 98c. pH 8.6 (see *Laco*). 3

Toni Creme Shampoo "with Lanolin" (The Toni Co., Merchandise Mart Plaza, Chicago) 4 oz., $1. pH 8.4 (see *Laco*). 3

Liquid (other than soap)

Marrow's Mar-O-Oil Super Foamy Type Shampoo (Marrow's Inc., 657 W. Chicago, Chicago) 9 oz., 63c. Free fat content, 13%, considered too high. 1

Admiracion Foamy Shampoo (Distributed by Admiracion Laboratories, Harrison, N.J.) 1 pt., $1.39. pH 9.6 (see *Laco*). 2

Kreml Shampoo "with Folisan" (Distributed by R. B. Semler, Inc., New Canaan, Conn.) 5 oz., 57c. CR did not find *Folisan* listed in scientific and chemical dictionaries as the name of any recognized chemical substance. pH 9.5 (see *Laco*). 2

Richard Hudnut "enriched creme shampoo with egg (powder 1%)" (Richard Hudnut, 113 W. 18 St., New York City) 8 oz., $1. 3

Wildroot Liquid Cream Shampoo "with Processed Lanolin" (Distributed by Wildroot Co., Inc., Buffalo, N.Y.) 4 oz., 59c. 3

Disk and Tape Recording

CR receives many requests for information about recording and recording devices. The following may help to answer questions which are in the minds of people who are interested in high-fidelity equipment.

Tape is no substitute for disk records. Tape recorders that will record with fidelity and naturalness comparable to that which can be obtained at moderate cost from well-chosen commercial disk records cost far more than the average consumer would consider possible to spend on such a device. Only the most avid and wealthy enthusiast could afford tape recording and reproducing equipment of the quality which would be necessary to satisfy really critical listeners.

As a home entertainment device, the low-cost machines (priced in the range of $100 to $400) are satisfactory, but for permanent keeping of high-quality music, only something from the *Magnecorder* up (that is from $800 to about $4000) can be recommended.

The use to which a tape recorder is to be put is very important in its selection; likewise the sound quality requirements of the particular listener. A *Crestwood* might serve very well to record radio broadcasts for a listener who considers that the sound quality from a $200 department-store radio-phonograph combination is good, and this is no reflection either on the *Crestwood* or the user of the $200 set. It would not be satisfactory, however, for use of a person who has in mind to produce with it recordings from the radio or from the original performance, of the quality he can buy in the form of ready-made disks in the record stores.

Where there are musicians in the family who want to check their own work, nothing less than a professional microphone, *Magnecorder* or *Ampex* equipment with broadcast input equipment, and *Brook* amplifier plus *Klipsch* or *Lansing D-1004* playback system, would serve. Nothing of lower quality will, when heard immediately after live music, sound very much like the original. With use of a low-cost recorder, like the *Crestwood*, the listener should have no expectation of sound that duplicates his performance, but if he wants only to know how satisfactory are his techniques, he may be fairly well satisfied.

There is no competition any more from "home recorders" of the disk type that were popular a few years back, and there doesn't seem to be even a remote possibility that manufacturers can provide a cutter for home use that will cut records of first-rate quality of the new long playing (LP) type. Professionals who use the most elaborate and expensive equipment, the cost of which may run to $20,000 or more, still get, from time to time, atrocious results in their recording. The cutting of LP records on plastic disks not only calls for instruments of the most intricate and precisely manufactured kinds, but the recording process itself is an art of the most difficult sort, requiring skill and experience; there is no likelihood that in the near future consumers will be able to buy and use equipment that will enable them to cut really satisfactory records on disks.

Television Receivers

Editor's Note: *The "black-and-white" receivers reported on in the listings were tested in the late spring of 1951. Indications are that they will be available at least until the end of the year, since manufacturers are, in most cases, adding only a small number of new sets to their lines. In this respect, the consumer should give much less weight to model numbers than he is accustomed to do. It is important to remember that a new model number does not mean that it is a completely new set or that a new circuit has been designed. It is likely that the new model, if it has the same number of tubes, will be quite similar in operating characteristics to one tested several months or even a year or more previously. Department stores and other dealers are operating on stocks which they have had in hand for months and many will not buy additional receivers or will order only a small fraction of the usual number for the fall selling season.*

The "improvements" in the new fall models, which are being announced as this Bulletin is being sent to press, appear to be of a minor nature; in some instances may amount to little more than the addition of a jack for plugging in an adapter for color TV. CR will report on these newer receivers, but subscribers must remember that at least 3 or 4 months are required for test work, editing, and checking before the reports can appear in the monthly Bulletin.

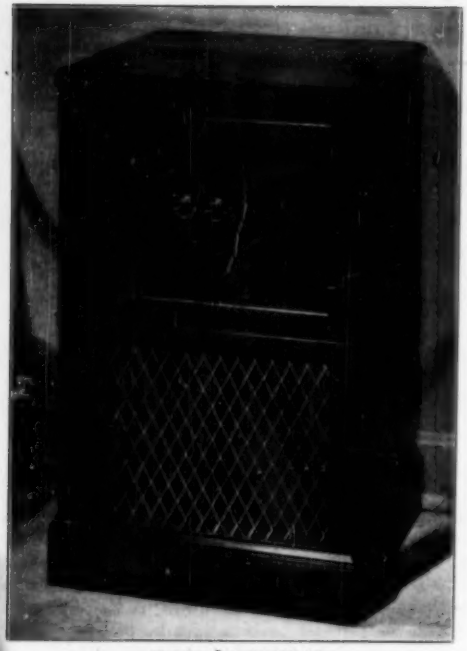
THE AVERAGE HOME OWNER who has decided to purchase a television receiver will often be doubtful whether he should make his purchase now or wait for a year or two. For the past several months he has been waiting; the result has been that, as this was written, more than 2,000,000 TV receivers were stacked up in manufacturers', distributors', and retailers' warehouses. Relaxation of the credit-control terms of the government's Regulation W should help some consumers to come to a decision. Others are awaiting clarification of color television, and problems of channel allocation.

Although the Federal Communications Commission gave the Columbia Broadcasting System permission to go ahead commercially with their system of colorcasting, and CBS is now producing in very limited quantity a set which will receive CBS colorcasts, the general reaction by the public seems, at best, to be one of only mild interest. It is likely that the public and most manufacturers are awaiting for a colorcasting system which is first of all *compatible*. With a compatible system, the more than 13,000,000 receivers now in use for receiving black-and-white transmissions would be capable of receiving colorcast programs as black-and-white pictures, without any changes in the circuits of the receiver. With the non-compatible CBS colorcasting system an adapter is needed if the colorcast is to be received in black and white on present black-and-white receivers. Prospective purchasers should remember that colorcasts, no matter which system is adopted, are not likely to be generally available on a full-time programming basis until 1953 or later. Telecasts in black and white are likely to be available for several years.

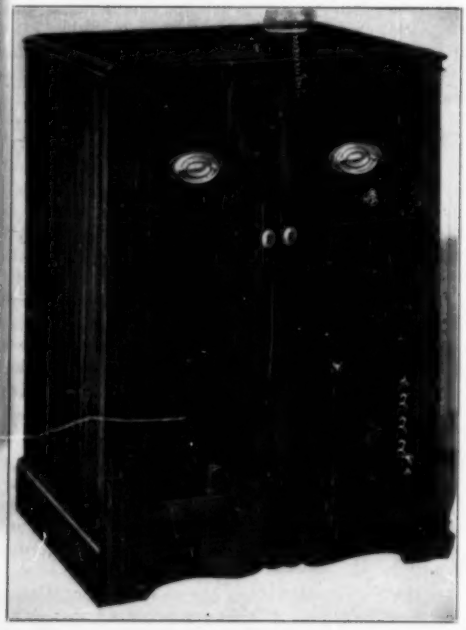
Because CBS is proceeding with colorcasts, this fall subscribers will likely see many advertisements for adapters, converters, and "slave units." An *adapter* is attached to present black-and-white receivers to allow reception of CBS colorcasts in black and white. Such an adapter, which changes certain electrical characteristics of the receiver to which it is attached, should be installed by a competent serviceman. Several manufacturers have announced that they will market adapters if there is a demand for them and one has indicated a price of about $20 for the unit. A *converter* is a device used in conjunction with a black-and-white receiver to make possible the reception of TV in color. The probable costs will be around $100 for a unit to be used with a black-and-white receiver having a 12½-inch viewing tube. For larger tubes, the converter required would be very bulky, and it is possible that converters will not be sold for the big tubes. A "*slave unit*" consists of a separate viewing tube and color wheel or disk which must be used as an adjunct to the conjoined black-and-white receiver, and will likely be most used with those equipped with the larger viewing tubes. Such a combination permits viewing of either colorcasts on the "slave unit" in 10- and 12½-inch size, or black-and-white telecasts on the usual black-and-white receiver in whatever size the viewing tube happens to be, without use of the "slave unit." "Slave units" having a 10-inch viewing tube for color may cost about $250.

Showings of the RCA colorcasting system in which most recent improvements were incorporated brought forth varying opinions from the many who witnessed them. In general, comments indicated that the quality of reception overall was at least as good as that available from the CBS system authorized by the F.C.C.

A major concern of most manufacturers is the price they will have to charge for the receiver they manufacture. If the price is too high, the number who buy the receiver will not be sufficient to permit the maker to recover the developmental costs nor can he expect to realize a profit on the operation. The price of the CBS color receiver with



Capehart Model 322 M



Hoffman Model 884

ten-inch tube and magnifier has been announced at $500. The prices that would be asked for compatible receivers capable of receiving both color and black and white can only be guessed at at this time. The *RCA* experimental unit now uses 54 vacuum tubes and a tri-color picture tube. If it were put into production by the manufacturers, it is likely the engineering department would find ways to reduce the number of tubes needed to possibly 35 to 40. The tri-color tube, which can be used with either the CBS or a compatible system, will come down in price as soon as it is put into mass production; nevertheless, the selling price of a receiver equipped with it is likely to be very high, indeed.

It would be our view that perhaps only those persons who are in a financial position to take a substantial risk without inconvenience should buy color sets in the immediate future. Perhaps during the next year a number of developments will become available which will make such a purchase considerably less of a risk than it surely is at the present time.

The receivers reported on were listed by the Underwriters' Laboratories. Their listing is important, as it indicates that the set has been tested from the standpoint of safety against fire and shock hazard, and found to be reasonably safe in those respects. Prices given are those prevailing on September 1, 1951. Ratings are cr51.

A. Recommended

Capehart, Model 322 M (Capehart-Farnsworth Corp., Fort Wayne, Ind.) $370. Console model, with well-constructed plywood cabinet. Watts input, 225. 20 tubes, plus 2 rectifiers and 17-in. rectangular picture tube. Picture mask size, 14½ x 11 in. Turret-type tuner. Workmanship, good; accessibility for servicing, very good. Frequency stability, good. Picture stability, very good. Brightness, good. Picture resolution or ability of receiver to present fine detail in picture, very good (over-all band widths, 4 megacycles). Approximate sensitivity: low band, 90 microvolts; high band, 95 microvolts; both good. Stability and linearity of sweep circuits, very good. Intercarrier sound circuit, not considered as desirable as separate intermediate frequency channels for the picture and sound signals. Acoustical quality on listening tests, very good. Over-all electrical fidelity of audio section, ± 6 db. from 60 to 15,000 cycles per second. Estimated tonal range as determined by output from 12-in. PM speaker, 65 to 6500 c.p.s. (fair). Power output, 1.7 watts at 10% distortion at 400 c.p.s., fair, for today's TV sets. Audio noise level, considered low. Leakage current, negligible. A very good set, and a vast improvement over the *Capehart, Model 3007-M* that was listed as *C. Not Recommended* in the July 1950 CONSUMERS' RESEARCH BULLETIN. 3

Hoffman, Model 884, Chassis No. 183 (Hoffman Radio Corp., 3761 Hill St., Los Angeles) $395. Console model, with well-constructed plywood cabinet. Watts, input, 225. 20 tubes, plus 2 rectifiers and 17-in. rec-

tangular picture tube. Mask size, 14 x 10¾ in. Turret-type tuner. Workmanship and accessibility for servicing, good. Frequency stability, good. Picture stability, average. Brightness, good. Picture resolution, good (over-all band widths: low band, 4 mc.; high band, 3.9 mc.). Approximate sensitivity: low band, 50 microvolts, very good; high band, 60 microvolts, good. Linearity of sweep circuits: horizontal, very good; vertical, fair. Separate audio and video i.f. sections. Acoustical quality on listening tests, very good. Over-all electrical fidelity of audio system, ± 6 db. from 90 to 5500 c.p.s. (fair). Estimated tonal range as determined by output from 12-in. PM speaker, 50 to 8000 c.p.s. (good), with some distortion of higher frequencies. Power output, 1.7 watts at 10% distortion at 400 cycles, fair for a TV set. Leakage current, 0.4 ma., not considered excessive. 3

Packard-Bell, Model 2112, Chassis No. 2111-2 (Packard-Bell Co., Inc., 3443 Wilshire Blvd., Los Angeles 64) $370. Console model, with well-constructed plywood cabinet. Watts input, 210. 18 tubes, plus 2 rectifiers and 17-in. picture tube. Picture mask size, 14 x 10¾ in. Turret-type tuner. Workmanship and accessibility for servicing, good. Frequency stability, good. Picture stability, good. Brightness, good. Picture resolution, good (over-all band widths, 3.9 mc.). Approximate sensitivity: low band, 60 microvolts; high band, 75 microvolts; both good. Linearity and stability of sweep circuits, good. Intercarrier sound circuit. (See comment under *Capehart.*) Acoustical quality on listening tests, average. Over-all electrical fidelity of audio system, ± 6 db. from 130 to 8000 c.p.s. (fair). Estimated tonal range as determined by output from 10-in. PM speaker, 75 to 7500 c.p.s., good. Power output, 1.2 watts at 10% distortion at 400 c.p.s., fair. Leakage current, 0.4 ma. (not considered excessive). 3

Packard-Bell Model 2112

B. Intermediate

Admiral, Model 27 K 16, Chassis 21F1 (Admiral Corp., 3800 W. Cortland, Chicago) $360. Console model, with ¾-in. plywood construction. Watts input, 200. 18 tubes, plus 2 rectifiers and 17-in. picture tube. Picture mask size, 13¾ x 10¾ in. Turret-type tuner. Workmanship and accessibility for servicing, good. Frequency stability, picture stability, and brightness, good. Picture resolution, average (over-all band widths, 3.6 mc.). Approximate sensitivity: low band, 70 microvolts; high band, 85 microvolts; both good. Stability and linearity of sweep circuits, good. Intercarrier sound circuit. Acoustical quality on listening tests, good. Electrical fidelity, audio system only, ± 6 db. from 65 to 12,000 c.p.s. (very good). Estimated tonal range as determined by output from 10-in. PM speaker, 50 to 7500 c.p.s. (good), with some distortion of higher frequencies. Power output, 1.2 watts at 10% distortion at 400 c.p.s., fair. Leakage current, 0.4 ma. (not considered excessive). 3

Carburetor Troubles on Chevrolets, Oldsmobiles, and Pontiacs

SEVERAL COMPLAINTS have been received of difficulties with the fuel systems of some *Chevrolet* and *Oldsmobile* cars. These cars stalled readily, were difficult to restart, and gave relatively poor gasoline mileage. The trouble has been traced not to faulty design but to production-line difficultjes; the intended accuracy of fit of parts of *Rochester* carburetors with which all *Chevrolets* and some *Oldsmobile* and *Pontiac* cars are equipped was not achieved in practice, in a good many cases. General Motors Corp. are now correcting these troubles free of charge through the service agencies of the Corporation's parts subsidiary, United Motors Service. Anyone who is having trouble with the carburetor of his *Chevrolet*, *Oldsmobile*, or *Pontiac*, or is getting unreasonably low gasoline mileage should take the car to his dealer and request that the carburetor be removed and taken to the nearest United Motors Service agency for correction. (The problem is too specialized for the dealer; needs carburetor experts' handling.) It should be noted that the difficulties have been more pronounced on *Chevrolets* with *Powerglide* than those with standard transmissions, and have been particularly bad on *Oldsmobiles*. In some cases, users of these cars have been urged to have an extra gasoline line filter installed, or fuel pump adjustments have had to be made, for the new carburetor is said to be specially critical in respect to the maintenance of correct float level and to particles of sand or rust that may be delivered into the tank at the filling station.

FIVE MORE 1951 REFRIGERATORS
Four Kelvinators and the New Electric-Powered Servel

THE present report deals with a group of refrigerators on which tests had not been completed at the time when the article in the September 1951 CONSUMERS' RESEARCH BULLETIN was prepared. Because of space limitations, the present article will concern itself only with the details of the findings on the present group of five refrigerators, and will not repeat the discussion of test methods used in evaluating the refrigerators described in this and the September 1951 issue. The four *Kelvinator* refrigerators were furnished on loan to an independent testing laboratory (the same laboratory that CR engages for most of its tests on refrigerators) and were accompanied by an affidavit stating that they were taken at random from regular production lines.

The *Servel* refrigerator differs from the *Servel* gas and previous *Electrolux* refrigerators, in that the gas flame is replaced by an electric heating element (which operates on either a.c. or d.c.). A similar method was used in the small 1½ cu. ft. *Astral* refrigerator reported in the November 1950 CONSUMERS' RESEARCH BULLETIN which, like the *Servel* electric, was found to be very inefficient in use of electrical energy.

Servel Model BK-846

By operating with electricity instead of gas, the manufacturers of the *Servel* have eliminated the grave hazard of asphyxiation manifested recently in certain localities where gas refrigerators were not being properly serviced, but unfortunately the cost of operation per month of the new refrigerator was very high, ran, indeed, to about nine times that of one of the better conventional electric refrigerators of the same volume capacity. The cost of operation of this electric *Servel* was high, too, in relation to the *Servel* gas refrigerator — about eight times that of the *Servel* gas refrigerator *W-700* previously tested by CR, on the basis of natural gas of 1100 Btu per cu. ft. at 75c per 1000 cu. ft., and more than twice that of the *W-700* gas refrigerator when manufactured gas was used of 535 Btu per cu. ft. at $1.40 per 1000 cu. ft.

All the *Kelvinator* models passed the electrical insulation tests, operated satisfactorily at low voltage (100 volts), and their units were warranted for five years. They had plate-type condensers located at back of cabinet and used *Fiberglas* insulation.

A. Recommended

Kelvinator, Model AS-R (Nash-Kelvinator Corp., 14250 Plymouth Road, Detroit 32) $225. Total rated capacity, 7.6 cu. ft. (actual, 7.5 cu. ft.). Rated shelf area, 13.5 sq. ft. (actual, 13.8 sq. ft.). Dimensions, 53½ in. high, 24¼ in. wide, 27⅞ in. deep. Frozen-food compartment (volume, 0.7 cu. ft.) located at right-hand side of top of refrigerator. Had 2 ice-cube trays (total, 3.5 lb. of ice cubes). Slight sweating of cabinet over a very small area at a relative humidity of 85% and a temperature of 87°F. Time required to lower temperature from 110° to 46°F, 2.5 hr. (favorable). Cost of operation, 14c per cu. ft. per month (about average of 1951 refrigerators tested to date). Maximum time to make 3.5 lb. of ice cubes, 2.5 hr. (0.72 hr. per lb.), slower than average. 1

Kelvinator, Model AH-R (Nash-Kelvinator Corp.) $245. Total rated capacity, 7.1 cu. ft. (actual, 7.1 cu. ft.). Rated shelf area, 13.9 sq. ft. (actual, 13.7 sq. ft.). Dimensions, 53⅝ in. high, 24⅛ in. wide, 27⅜ in. deep.

Frozen-food compartment (volume, 0.8 cu. ft.) located at top of refrigerated space and extends full width of cabinet. Had baffles, adjustable to control humidity within the box. Had 3 ice-cube trays (total, 5.25 lb. of ice cubes). Slight sweating of cabinet at 79% relative humidity, moderate sweating at relative humidity of 85% at 87°F. Time required to lower temperature from 110° to 46°F, 2.65 hr. (favorable). Cost of operation, 16.6c per cu. ft. (somewhat above average of 1951 refrigerators tested). Maximum time to make 5.25 lb. of ice cubes, 3.0 hr. (0.57 hr. per lb.), about average. **2**

Kelvinator, Model HR-R (Nash-Kelvinator Corp.) $275. Total rated capacity, 8.0 cu. ft. (actual, 8.0 cu. ft.). Rated shelf area, 15.0 sq. ft. (actual, 14.6 sq. ft.). Dimensions, 58 in. high, 31¼ in. wide, 29 in. deep. Frozen-food compartment (volume, 0.9 cu. ft.) located at top of refrigerated space and extends full width of cabinet. Had adjustable baffle to control humidity within box. Had 3 ice-cube trays (total, 5.25 lb. of ice cubes). Slight sweating of cabinet at 79% relative humidity, moderate sweating at 85% at 87°F. Time required to lower temperature from 110° to 46°F, 2.75 hr. (favorable). Cost of operation, 14c per cu. ft. (about average). Maximum time to make 5.25 lb. of ice cubes, 3.7 hr. (0.7 hr. per lb.), slower than average. **2**

Kelvinator, Model HM-R (Nash-Kelvinator Corp.) $370. Total rated capacity, 10.9 cu. ft. (actual, 10.9 cu. ft.). Rated shelf area, 18.4 sq. ft. (actual, 18.4 sq. ft.). Dimensions, 60¾ in. high, 31¼ in. wide, 29¾ in. deep. Frozen-food compartment (volume, 1.3 cu. ft.) located at top of refrigerated space and extends full width of cabinet. Had baffle, adjustable to control humidity within the box. Had 4 ice-cube trays (total, 7 lb. of ice cubes). Slight sweating of door over a very small area at a relative humidity of 85% at 87°F. Time required to lower temperature from 110° to 46°F, 4 hr. (favorable on a per-cu.-ft. basis). Cost of operation, 13c per cu. ft. (about average). Maximum time required to make 7 lb. of ice cubes, 4.5 hr. (0.64 hr. per lb.), about average. **2**

C. Not Recommended

Servel, Model BR-846 (Servel, Inc., Evansville, Ind.) $350. An "Electro Thermal" refrigerator similar to the gas refrigerator of the same make except that an electric heating element is used in place of the gas flame. Total rated capacity, 8 cu. ft. (actual, 7.7 cu. ft.). Actual shelf area, 13 sq. ft. Dimensions, 58 in. high, 30¼ in. wide, and 30 in. deep. Had 4 ice-cube trays (total, 7 lb. of ice cubes). In pull-down test after approximately 24 hr. of continuous running, box failed to reach an average temperature of 46°F (indicating very inadequate capacity of the refrigeration unit). Cost of operation, approximately 91.5c per cu. ft., or about 8 times as much as the most economical in operation of the 1951 refrigerators tested. In the ice-cube-making test, 19 hr. were required to freeze 3 of the trays; the fourth was only half frozen (relatively very poor). 10-yr. warranty on freezing system. **3**

* * *

For convenience of readers we reproduce in very condensed form the listings of refrigerators reported in the September 1951 CONSUMERS' RESEARCH BULLETIN. For comparative operating costs, see Table II.

A. Recommended

Philco, Model F-915 (Philco Corp.) $300. Total rated capacity, 9.1 cu. ft. (actual, 9 cu. ft.). Rated shelf area, 14.1 sq. ft. (actual, 14.1 sq. ft.). Dimensions, 60½ in. high, 28½ in. wide, 28½ in. deep. **1**

Philco, Model F-1112 (Philco Corp.) $330. Total rated capacity, 11 cu. ft. (actual, 11 cu. ft.). Rated shelf area, 18.8 sq. ft. (actual, 19 sq. ft.). Dimensions, 61 in. high, 30½ in. wide, 28 in. deep. **1**

Philco, Model F-1115 (Philco Corp.) $360. Similar to *Model F-1112*, except equipped with 2 instead of 1 vege-

Table I

Table showing time required for the various refrigerators to be "pulled down" in temperature from 110°F (room temperature, outside and, at start, inside of box) to 46°F.[1]

	Price	Actual cu. ft.	Price per Actual cu. ft.	Number of hours required to reduce temperature to 46°F[1]	Hours per cu. ft.
Kelvinator AS-R	$225	7.5	$30.00	2.5	0.33
Kelvinator HR-R	275	8.0	34.40	2.75	0.34
Kelvinator AH-R	245	7.1	34.50	2.65	0.37
Kelvinator HM-R	370	10.9	34.00	4.00	0.37
Servel BR-846	350	7.7	45.50	23.8[1] plus	3.1[1] plus

[1]In the test of the *Servel*, the temperature inside the box was not reduced to 46°F even after 23.8 hr. of running.

table drawer and had a covered meat compartment in one half of the drip tray. 1

General Electric, Model LC-8-HC (General Electric Co.) $300. Total rated capacity, 8.2 cu. ft. (actual, 7.7 cu. ft.). Rated shelf area, 13.7 sq. ft. (actual, 14.8 sq. ft.). Dimensions, 59¼ in. high, 30 in. wide, 29 in. deep. Ranked first (lowest) in cost of operation (10.7c) per cu. ft. per month of all 1951 refrigerators tested to date. 2

Hotpoint Special DeLuxe, Model EC82-5 (Hotpoint, Inc.) $300. Essentially the same as *General Electric, Model LC-8-HC.* 2

International Harvester, Model HA-84 (International Harvester Co.) $330. Total rated capacity, 8.4 cu. ft. (actual, 8.9 cu. ft.). Rated shelf area, 16.7 sq. ft. (actual, 16.7 sq. ft.). Dimensions, 59½ in. high, 29½ in. wide, 29 in. deep. 2

Westinghouse Frost-Free, Model DFC-8 (Westinghouse Electric Corp.) $390. Total rated capacity, 7.9 cu. ft. (actual, 8.4 cu. ft.). Rated shelf area, 15.28 sq. ft. (actual, 15.0 sq. ft.). Dimensions, 61¼ in. high, 31 in. wide, 26½ in. deep. 3

C. Not Recommended

Crosley Shelvador, Model SAC-9 (Crosley Div., Avco Mfg. Corp.) $370. Total rated capacity, 9.5 cu. ft. (actual, 9.5 cu. ft.). Rated shelf area, 17.93 sq. ft. (actual, 18.0 sq. ft.). Dimensions, 58 in. high, 31¼ in. wide, 28¼ in. deep. Cost of operation, high. 2

Table II

A comparison of monthly operating costs of 1951 refrigerators tested by CR. The electric rate is assumed to be 3½c[1] per kwhr. The figures in column 4a are monthly operating costs per cu. ft. of total storage space at 90° room temperature.

1	2	3	4	4a		5	
		Estimated Monthly Operating Cost at Room Temperatures of					
	Total Storage Capacity, cu. ft. Actual	80°	90°			110°	
				per cu. ft., cents	% running time		% running time
Kelvinator HM-R	10.9	$1.06	$1.42	13.0	32.0	$2.78	70.0
Kelvinator AS-R	7.5	0.79	1.05	14.0	23.8	2.06	50.0
Kelvinator HR-R	8.0	0.84	1.12	14.0	25.7	1.84	42.8
Kelvinator AH-R	7.1	0.89	1.18	16.6	27.5	2.20	55.3
Servel BR-846	7.7	5.27	7.04	91.5	72.0	9.70[2]	100.0
The following refrigerators are those reported in the September 1951 Bulletin:							
General Electric LC-8-HC	7.7	$0.62	$0.82	10.7	20.8	$1.44	37.2
Philco F-1115	11.0	0.95	1.26	11.5	24	—	—
Philco F-1112	11.0	0.99	1.32	12.0	25	—	—
Westinghouse DFC-8	8.4	0.77	1.03	12.3	18.6	2.32	41.5
International Harvester HA-84	8.9	0.83	1.11	12.5	24.2	2.06	47.8
Philco F-915	9.0	0.92	1.22	13.5	27	—	—
Crosley Shelvador SAC-9	9.5	1.44	1.92	20.2	47	[3]	100%

[1]Approximate operating costs at other rates may be computed by simple proportion. For example, if you pay on the average 2½c (instead of 3½c) per kwhr., the operating cost of the *Kelvinator AS-R* at 90° becomes 2½ x 1.05 ÷ 3½ or approximately 75c per month.
[2]Average temperature inside cabinet could not be reduced below 53°F.
[3]Did not reach 46°F with motor running continuously.

Detergents Used in Dishwashing

DISHWASHING is such a frequent household cleaning task that every homemaker is interested in knowing what detergents will help her do the best job with the least effort and the least injury to her hands. For dishwashing by hand, soap has long been the most popular detergent. It cleans effectively in soft or softened water and has an advantage over many "dishwashing detergents" in that, normally, it is not hard on the hands.

In hard water, products that depend on the action of synthetic detergents are likely to be more satisfactory than soaps, because the latter react with the salts in hard water to form curds and scum. Synthetic detergents, however, may often make the hands feel dry, because the surface oil of the skin has been removed, and they are more irritating to the skin than soap. They may also cause injury to the skin around the base of the nails, which seems especially susceptible to their defatting action. Flake or powdered soap products containing alkaline builders (soaps of the kind used for heavy laundering) will also be more satisfactory in hard water than other soaps, because the alkaline salts in "built" soaps serve partly to soften the water. They should not contain too much of the alkaline salts because of the irritant and drying action of these on the skin. There is no doubt that so-called "dishpan hands" can be caused by harsh detergents.

Detergents for use in mechanical dishwashing can, of course, safely be much more alkaline than those used for hand dishwashing. In fact, some of the detergents used in mechanical dishwashers are mixtures of alkaline salts only, without any soap or synthetic detergent. Such mixtures may work very well in the cleansing of dishes, and the Bureau of Ships specifies dishwashing compounds of this kind for use in mechanical dishwashers. When such mixtures are to be used in hard water, they should contain a suitable proportion of a sequestering type of water softener, such as one of the polyphosphates, so as to reduce the clouding or filming of glasses. Any detergent that forms much foam is unsuitable for use in dishwashing machines because the foam interferes with the washing action.

CR's tests included 20 dishwashing detergents. Chemical analyses were made, and laboratory tests to determine effectiveness in cleaning were performed.

Preliminary to the first laboratory dishwashing test, dessert dishes soiled with cooked yolk of egg, grease, commercial bean soup, peanut butter, canned red cherries, and cups soiled with coffee dregs were allowed to stand for 30 minutes. In order to standardize test conditions as much as possible, plates and cups were the same size and of the same manufacture. Glasses were soiled by filling with milk, emptying, and allowing to dry bottoms down. The water used for the test was moderately hard (about 140 parts per million).

Dishes were soaked for 5 minutes in a solution of 2 teaspoonfuls of detergent (or less if recommended by the manufacturer) in two gallons of tap water at 140°F (about the highest water temperature that is desirable, and likely to be obtained in the average home), and the solution allowed to cool normally. In all cases it was found that the soil was loosened and the dishes were easily cleaned with the dishcloth. Dishes were allowed to dry without wiping. There was no noticeable spotting.

In the second laboratory test, detergents were evaluated by the York Laboratories Method (York Research Corp. of Connecticut, Stamford, Conn.) which uses glass wicking soiled with a grease base soil and with protein-carbohydrate soils. (The glass wicking was used in the test because its surface is similar to the surfaces of glasses and dishes.) Washing was done in an Atlas Launder-Ometer, a laboratory machine which permits testing 20 samples at a time under uniform conditions of temperature and agitation. Moderately hard water (about 140 parts per million) and hard water (approximately 300 parts per million) were used. Machine dishwashing detergents were tested at 140°F (ma-

Taking Reflectometer Readings

A reflectometer was used to compare the surface "brightness" of the soiled samples of glass wicking before and after washing in the test to evaluate cleansing properties of the detergents.

chine dishwashing temperature); all others were tested at 100°F (hand dishwashing temperature). Detergency was evaluated on the basis of reflectometer readings.

Because of the differences in character of water supplies, dishwashing detergents are best purchased to suit the characteristics of the water at the place where they are to be used. Comments on soil removal in hard and soft water given in the listings will thus be useful to the housewife in making her own selections.

The detergents analyzed and tested were pur-

Chemical Analyses of Dishwashing Detergents

These analyses are given for the benefit of those among our readers who are interested in the chemical nature of the new and popular detergents. All products with the exception of *Calgonite* and *Ivory Soap* contained a fluorescent dye (so-called optical bleach). Abbreviations used: tspp., tetrasodium pyrophosphate; tsp., trisodium phosphate.

Brand	Net Weight oz.	Price Cents	pH of 1% Solution	Wetting Agent %	Carbonates %	Chlorides %	Phosphates %	Silicates %	Sulfates %
Alkaline Salts									
Calgonite	32.2	47	11.6	a 2.0	sodium 8.3	trace	tsp. .4 tspp. .2 meta 66.1	meta 21.2	—
Electra-Sol	27.4	39	11.3	a .8	sodium 45.0	—	tspp. .3 tripoly 14.6	meta 20.2	—
Liquid Synthetics									
Chat	32.0	79	10.6	d 6.3	—	trace	tsp. 6.4 tspp. 3.6 tripoly .4	—	trace
Glim	6.0	27	7.0	b 53.0	—	.4	—	—	—
Joy	5.9	26	7.3	c 62.0	—	trace	—	—	—
Synthetic Detergents									
Dreft	15.3	26	7.8	e 38.8	—	1.3	—	—	57.8
Swerl	10.4	27	6.6	f 33.4	—	1.6	—	—	62.6
Vel	15.5	28	7.0	g 32.0	—	1.3	—	—	64.7
Built Synthetic Detergents									
All	23.2	39	10.4	h 16.1	sodium 1.2 sodium bi 20.3	—	tspp. 36.6	meta 12.9	—
Ease	26.8	53	9.8	d 5.8	sodium 25.3 sodium bi 17.6	—	tsp. 4.3 tspp. 19.4 tripoly 3.6	meta .3	10.5
Fab	20.5	26	9.2	f 36.0	trace	1.1	tspp. 43.6 tsp. 3.8	meta 6.0	—
Spin	10.0	25	10.6	a 15.9	sodium 1.0 sodium bi 13.0	1.0	tsp. 2.9 tspp. 40.1	13.4	trace
Tide	20.6	28	9.4	a 19.6	trace	.9	sodium 11.3 tspp. 3.5 tripoly 31.0	meta 7.4	14.8

a - sulfate type; b - ethylene oxide condensation product; c - amide and sulfonate type; d - sulfonate type; e - sodium lauryl sulfate; f - alkyl aryl sulfonate; g - sulfated monoglyceride; h - non-ionic polyethylene ether type.

Chemical Analyses of Dishwashing Detergents

Brand	Net Weight oz.	Price Cents	pH of 1% Solution	Anhydrous Soap %	Moisture and Volatile Matter %	Free Alkali as Caustic Soda %	Chlorides %	Builders %
Soaps								
Chiffon	12.2	28	10.3	97.5	1.1	.01*	.4	—
Ivory Flakes	11.6	26	10.2	97.7	1.4	.01*	.4	—
Ivory Soap	9.0	13.5	10.3	87.3	11.8	.01	.3	—
Ivory Snow	12.8	26	10.2	97.2	1.9	.01*	.4	—
Built Soaps								
Duz	20.3	26	9.9	76.9	3.2	—	.9	silicate of soda 10.2 tspp. 7.8 carbonates trace
Oxydol	23.4	28	10.1	63.4	6.5	—	.9	tspp. 2.7 tripolyphosphate 7.0 silicate of soda 18.5 carbonates trace
Rinso	22.3	28	10.1	67.5	5.9	—	1.1	tsp. trace carbonates trace tspp. 7.4 meta silicate of soda 17.3

*less than

chased the latter part of 1950. Since then some changes in formulation may have taken place. The *Glim* tested, for example, contained a non-ionic detergent, but within the last year *Glim's* active ingredient has been changed to an anionic detergent. Prices are those paid for the detergents when they were bought for test.

Machine Dishwashing Detergents

A. Recommended

The following detergents were superior to others in removing grease or protein-carbohydrate soils in soft or in hard water.

Spin (Climalene Co., Canton, Ohio) 25c for 10-oz. box. Better-than-average removal of protein-carbohydrate soil in soft water and hard water, and of grease soil in hard water.

All (Detergents, Inc., Columbus, Ohio) 39c for 24-oz. box. Better-than-average removal of grease soil in soft water.

Ease (Ease, Inc., Burbank, Calif.) 53c for 28-oz. box. Better-than-average removal of grease soil in soft water and of protein-carbohydrate soil in hard water.

Electra-Sol (Economics Laboratory, Inc., St. Paul) 39c for 26 oz. box. Better-than-average removal of grease soil in soft water and of protein-carbohydrate soil in hard water.

Calgonite (Calgon, Inc., Pittsburgh) 47c for 2-lb. box. Better-than-average removal of protein-carbohydrate soil in hard water.

• • •

The following detergent was about average in removing grease and protein-carbohydrate soils in soft and hard water.

Chat (Antara Products, Div. of General Aniline & Film Corp., 444 Madison Ave., New York City) 79c for 32-fl.-oz. can.

Hand Dishwashing Detergents

A. Recommended

Ivory Soap (Procter & Gamble Co., Cincinnati) 13½c for a large bar. Better-than-average removal of protein-carbohydrate soil in soft water and of grease soil in hard water.

A. Recommended (cont'd)

The following were about average in removing grease and protein-carbohydrate soils in soft and hard water.

Dua (Procter & Gamble) 26c for 20½-oz. box. Built soap.

Fab (Colgate-Palmolive-Peet Co., Jersey City, N.J.) 26c for 19-oz. box. Built synthetic detergent.

Ivory Flakes (Procter & Gamble) 26c for 12½-oz. box. Soap.

Ivory Snow (Procter & Gamble) 26c for 12½-oz. box. Soap.

Oxydol (Procter & Gamble) 28c for 24-oz. box. Built soap.

Rinso (Lever Bros. Co., 505 Park Ave., N.Y.C.) 28c for 23-oz. box. Built soap.

Swerl (Swerl Products Div., Allied Chemical Dye Corp., N.Y.C.) 27c for 10-oz. box. Synthetic detergent.

Tide (Procter & Gamble) 28c for 19-oz. box. Built synthetic detergent.

Chiffon (Armour & Co., Chicago) 28c for 12½-oz. box. Soap. In soft water, better-than-average removal of protein-carbohydrate soil but poorer-than-average removal of grease soil.

Joy (Procter & Gamble) 26c for 6-fl.-oz. bottle. Liquid synthetic detergent. In soft water, better-than-average removal of grease soil but poorer-than-average removal of protein-carbohydrate soil.

Dreft (Procter & Gamble) 26c for 15-oz. box. Synthetic detergent. Poorer-than-average removal of grease soil in hard water.

B. Intermediate

Glim (B. T. Babbitt, Inc., 386 Fourth Ave., N.Y.C.) 27c for 6-fl.-oz. bottle. Liquid synthetic detergent. Poorer-than-average removal of grease soil and protein-carbohydrate soil in soft and in hard water.

Vel (Colgate-Palmolive-Peet Co.) 28c for 15-oz. box. Synthetic detergent. Poorer-than-average removal of grease soil in soft and in hard water.

Corrections and Emendations to Consumers' Research Monthly Bulletins

Radio-Phonograph Combinations
Page 21, Col. 2
June '51 Bulletin

Information from a *Scott* dealer indicates that the price of the *Scott Model 510* radio-phonograph combination is now $245, without cabinet or record changer.

Toilet Seats
Page 23
July '51 Bulletin

In the July 1951 BULLETIN, CR reported its results of a test on toilet seats. Eight seats had been tested for rigidity, resistance to scratching, heat, flame, alkalies, and acids, and examined for quality of materials and construction, and for design from a sanitary standpoint.

Since the report appeared, the manufacturer of the *Herculean* seat has written to say that the *Herculean* seat tested was no longer being manufactured, and that it was off the market at the time the article appeared; a seat of the latest model will be tested and reported by CR in due course.

CR is glad to tell its readers of the discontinuance of the old model *Herculean* reported in the July 1951 BULLETIN. Unfortunately, it is impossible to differentiate the older model from later ones since neither the one tested nor the *Herculean* seats subsequently purchased by CR carried an identification number or model name. CR understands, however, that the new *Herculean* seat lacks the ribs that can be seen at the middle in the photograph on page 22 of the July BULLETIN.

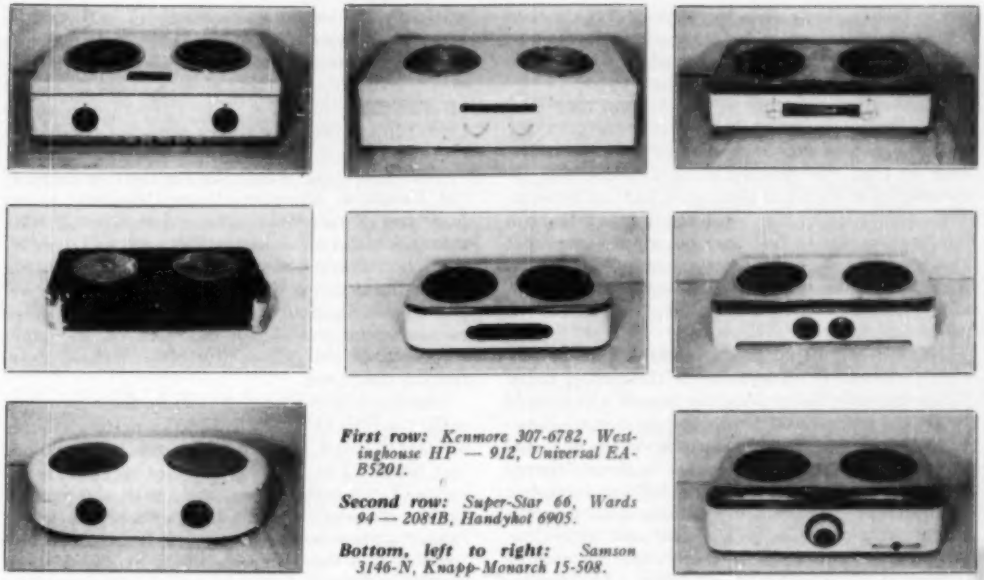
The *Homart* seat tested was *No. 3734*, listed in the 1951 Fall and Winter Sears-Roebuck's catalog at $7.45, plus postage. It was made of molded composition material with a wooden lid, and this seat is one of two seats (depending on Sears' source of supply) being delivered to customers who order *No. 3734*. CR did not test the seat marked *3734* that is made entirely of hardwood. The *Homart* should have been identified as the most rigid seat tested, along with the *Wards*. The *Olsonite* ranked next.

CR has been advised that the Federal Seat Corp., maker of the *Federal Life Time* seat listed in column 1, page 23, of the July 1951 BULLETIN, is no longer in business.

Automobiles of 1951
Pages 14, 15
August '51 Bulletin

Chrysler Imperial 8 in Price Group 6. Change wheelbase from 145.5 to 131.5 inches; over-all length from 230 to 213 inches; over-all width from 80 to 76 inches; brake area from 260 to 201 sq. inches; brake factor from 51 to 39; tire size from 8.90 x 15 to 8.20 x 15. The figures incorrectly given were for the 8-passenger *Imperial*. Usable seating widths, maximum leg room and headroom are very nearly the same as on the *Chrysler New Yorker* in Price Group 5.

The corrected figures as well as those remaining unchanged refer to the cheapest *Imperial* 4-door sedan, as had been intended.



First row: *Kenmore 307-6782, Westinghouse HP — 912, Universal EA-B5201.*

Second row: *Super-Star 66, Wards 94 — 2081B, Handyhot 6905.*

Bottom, left to right: *Samson 3146-N, Knapp-Monarch 15-508.*

Two-Burner Electric Table Stoves

THE table stoves reported in this article are small ones of the kind that are used mainly for temporary or emergency purposes in the home, or in a small apartment or furnished room where space or housekeeping facilities are limited. They also have a place for special occasions when there may be an insufficient number of burners on an electric or gas range unit to heat all of the utensils that may be needed. They often perform a useful service for vacationers, hunters, fishermen, etc., to help prepare simple hot meals away from home, in locations where electricity is available, without the inconvenience of building a wood or coal fire.

CR in testing these units in 1940 found them to be wanting in a number of respects. They were usually slow to cook, inefficient, poorly finished, and in general displayed a lack of workmanlike qualities in their design. Several of the stoves included in the present tests showed the same faults with regard to workmanship and operation. Indeed, only one stove in the group, the *Kenmore*, had the rod-type heating units which are now, for very good reasons, used on practically all electric ranges. The others were equipped with either open-wire-coil elements or units in which the heating element was embedded in a circular cast-iron plate; both the latter kinds are comparatively inefficient; the open-coil unit has obvious disadvantages, among which is the fact that one can get a shock if a metal article in the hand touches the exposed wire coil. The manufacturers have evidently given little thought to improving the general usefulness and electrical quality of these appliances.

Because they are intended to be plugged into the usual wall outlet, the wattage rating of the stoves should not be more than 1650 watts, to avoid overloading the house wiring in a normal circuit, with consequent possibility of starting a fire. Certainly no other appliance such as an iron or toaster should be plugged into the same line at the same time. Only one stove, the *Super-Star*, was rated at much less than the permissible limit. The most used method of dividing these 1650 watts was to have one burner with a 1000-watt rating and the other burner with a 650-watt rating. (The average small burner on the electric ranges last tested by CR were rated at approximately 1250 watts at high heat and about 650 watts in the next lower position of the control.) The *Knapp-Monarch* stove was rather unusual in that the maximum watts input to either one burner or the other could be et at 1250 by means of a single 13-position control which was so connected that whenever high heat was called for on one burner, the other burner, if it was used, could not draw more than about 400 watts. While this was a desirable arrangement in that it allowed

for a higher single-element wattage rating than was available on any of the other stoves, it involved a control which CR considered unduly complicated mechanically and somewhat difficult to use.

The heating elements of the *Samson* and *Universal* stoves were controlled by thermostats using an arrangement similar to that used in an electric iron in that the heat-sensitive element was incorporated as a part of the cast-in heating element. This design limits the total watts input to both burners together to 1650 maximum; presumably it also precludes the use of direct current. No life tests were run on the thermostats; therefore, the probability of their failure after long use cannot be predicted.

The stoves differed in the methods used to provide variations in temperature of the heating units. All of the units had at least one burner which could be set for any one of three different heats. Heating units of the *Knapp-Monarch*, *Super-Star*, and *Westinghouse* stoves could be set to three different heats. The *Westinghouse* provided for a total of six different element temperatures with two elements. On the *Knapp-Monarch* and *Super-Star*, each burner substantially duplicated the cooking temperatures available on the other. The *Samson* and *Universal* stoves provided for a practically limitless number of degrees of heat by the use of a thermostat control, as mentioned previously.

CR's Tests

The test procedures used for the tests of the table-model electric stoves were selected from applicable sections of standards adopted by the Association of Edison Illuminating Companies, the American Standards Association, and Underwriters' Laboratories.

Leakage current was measured with the appliance in the "as received" condition, after exposure to high relative humidity (85% RH) for 24 hours, and at operating temperature after operating for one hour. In addition, a proof voltage of 900 volts was applied for a period of one minute in the "as received" condition and also while the stove was still very hot after one hour of operation. The *Samson* stove failed the proof-voltage test; the *Knapp-Monarch* had an excessive, indeed dangerous, leakage current.

The power input in watts was determined for each heating unit at each setting of the control after the unit had come to a steady heat.

The temperatures reached at various parts of the stove and the table below the stove were measured after one hour's operation to determine the possibility of the user's being burned by contact with the stove frame or controls, and of damage to the table top. The control knobs on the *Samson* and *Wards* reached excessive temperatures (considerably above 150°F) during this test. In addition, the metal end-sections of the *Knapp-Monarch*, *Samson*, *Super-Star*, and *Wards* reached temperatures considerably in excess of 200°F; none of the stoves, except the *Kenmore*, could be picked up with the bare hands. The temperatures at the table top beneath the stoves were not considered excessive, in any instance.

The connecting plugs used on the line cords of the *Handyhot*, *Kenmore*, *Knapp-Monarch*, *Super-Star*, and *Wards* were alike. Although all were stamped with the monogram CH and the UL label, when both burners were turned to "high" on any one of those stoves the plug became much too hot and might, in time, cause a fire or improper or unsafe operation. The plugs used on the other three stoves did not exhibit this localized overheating condition.

Heating-unit efficiency was determined by measuring the time and electrical energy needed to bring a quart of water to the boiling point in a standard test vessel. The results of this test are quite interesting if comparisons are made with the average figures obtained in CR's last tests of the small-burner units now used on electric ranges. Excluding those on the *Kenmore*, which averaged about 70-75% efficient, being burners similar to those used on the modern electric range, the over-all average for all the heating units in the table stoves was only 46%. The small heating units of the electric ranges averaged 64%, so that the table stoves took about 40% more electricity for the same cooking job than a regular range. On an average the table stoves required 16 minutes to boil a quart of water as compared to 8 minutes average for an electric range.

Each stove, except the *Kenmore*, had a crevice between the heating unit and the top of the stove. Food or grease lodging it it would be difficult to remove.

In addition to the above tests, a thorough engineering examination was made of each stove. None of the stoves was equipped with a carrying handle or something similar to provide for easy portability while still hot or warm after a period of use. In the listings following, actual watts input to the left and right heating units are followed in parentheses by rated watts input. With the exception of the *Super-Star*, all stoves were listed by the Underwriters' Laboratories; only the *Kenmore*, *Samson*, and *Universal* had the identifying label stamped on the stove itself. The stoves were purchased for test in the winter of 1950, but are believed to be currently available. Ratings are cr51.

A. Recommended

Kenmore, Model 307-6782 (Sears-Roebuck's Cat. No. 34—06782) $20. A.c. only. Weight, 9.7 lb. 6¼ in. high, 20 in. wide, 11 in. in depth. White porcelain-enameled sheet-steel top. Rod-type heating elements,

Thermo-Kleen Monotube, easily cleaned. Power input in watts, 990, 524 (1100, 550). Efficiency very much higher than that of any other stove element in test. Left unit provided "high," "medium," and "low" heats; right unit, "high" only. Controls: simple turn switches, clearly marked and well placed. Heating units were flat and level. Exterior surface of stove and table top remained relatively cool during operation; temperature of table top beneath stove, lowest of any stove (72°F), a considerable advantage to some users. Sample tested rocked slightly on a plane surface. Leakage current, a measure of shock hazard potentiality, satisfactorily low. **3**

B. Intermediate

Westinghouse, Cat. No. HP—912 (Westinghouse Electric Mfg. Co., Mansfield, Ohio) $18. A.c. only. Weight, 11.9 lb. 6 in. high, 23 in. wide, 10½ in. in depth. White porcelain-enamel finish on top, white enamel finish on sides. Open-coil heating elements lying in ceramic holder, considered somewhat difficult to clean; both were level. Power input in watts, 965, 645 (1000, 650). Efficiency of heating units, below average. 3 heat control for each burner. Control knobs, simple turn switches, well marked and well placed. Controls remained relatively cool, but metal end of stove reached temperature of 200°F. Cord entrance to stove was such as to subject insulation to wear against table top. Leakage current, satisfactorily low. Heating efficiency, about average. This table stove had an exceptionally large top surface, but since table stoves are not sufficiently large to provide a practical working area for utensils not actually on the burner, this feature is not considered to be of any particular advantage for most users. **2**

Universal, Model EA-B5201 (Landers, Frary & Clark, 100 Center St., New Britain, Conn.) $20. A.c. only. Weight, 12.4 lb. 5 in. high, 18 in. wide, 8½ in. in depth. Chrome-plated sheet-steel top, white-enameled sides. Heating elements, embedded in cast iron; surfaces were flat, one surface not level. Control knob shafts poorly aligned. Power input in watts, 900, 630 (1000, 650). Heat controlled by separate thermostats. Heating efficiency, slightly above average. Controls, clearly marked and well placed; had the disadvantage of not operating with a click or similar action to give assurance of the regulating knobs being in the "off" position. Surface temperatures of controls, end sections, and table top, satisfactorily low. Leakage current, 1 ma., slightly above permissible limit. **3**

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The following stoves, while worthy of a *B-Intermediate* rating, were not considered as desirable in several respects as the other stoves in this group.

Super-Star, Model 56 (Stern-Brown Inc., 42-24 Orchard, Long Island City, N. Y.) $14. A.c. or d.c. Weight, 7.3 lb. 4½ in. high, 18 in. wide, 8¼ in. in depth. Black crackle finish on top and sides. Open-coil heating elements placed in ceramic holder; unit covered by sheet-steel disk. Surfaces of heating units were somewhat cupped but pots or pans could be set level; stove rocked on plane surface. Power input in watts, 745, 735 (1500). Heating unit efficiency: left, about average; right, below average. "Low," "medium," and "high" heat settings for each burner; control switches were marked and placed satisfactorily but projected needlessly because they were mounted on front of stove. Temperature of switches, slightly high; temperature of end sections, much too high (over 300°F) — higher than corresponding temperatures of any other stove in the test. Table-top temperature, satisfactorily low. Leakage current, satisfactorily low. **1**

Wards (Montgomery Ward's Cat. No. 94—2081B) $12. A.c. or d.c. Weight, 12.2 lb. 4½ in. high, 16¾ in. wide, 8¾ in. in depth. Chrome-plated sheet-steel top, white-enamel finish on sides. Heating elements, embedded in cast-iron plate; surfaces were flat and level. Power input in watts, 990, 675 (1650). Efficiency of heating units, somewhat above average. Heat controlled by toggle switches, 2 for left burner providing 3 heats, 1 for right burner, providing 1 heat only. Temperatures of end sections (268°F) and switch levers (178°F) were excessive. Temperature at table top, satisfactorily low. A compact unit. Leakage current, excessive, 2.6 ma. **1**

Handyhot, Cat. No. 6905 (Chicago Electric Mfg. Co., 6335 W. 65, Chicago) $16. A.c. only. Weight, 10.0 lb. 4½ in. high, 17¾ in. wide, 8¾ in. in depth. Chrome-plated sheet-steel top, white-enamel finish on sides. Open-coil heating elements placed in a black-ceramic base. Efficiency, average. Power input in watts, 960, 605 (1000, 600). Left unit provided "high," "medium," and "low" heats; right, "high" only. Controls: simple turn switches, clearly marked and well placed. Units were level. Surface temperatures of control knobs, end sections, and table top, satisfactorily low. Leakage current, 1 ma., slightly above permissible limit. **2**

C. Not Recommended

Samson, Model 3146-N (Samson United Corp., University Ave. and Weiss Blvd., Rochester, N.Y.) $20. A.c. only. Weight, 14.9 lb. 5¼ in. high, 21 in. wide, 11 in. in depth. White-enamel finished top and sides; single sheet-steel pressing. Heating elements, embedded in cast-iron plate; surfaces of heating units were flat, but one was not "level." Power input in watts, 620, 950 (1650). Efficiency of heating units, below average, and they were "slow" in heating. Heat controlled by separate thermostats; control knobs, well placed and easy to read. Exterior surfaces at ends of stove and control knobs became quite hot (245°F). Temperature of table top beneath stove, highest of any stove (185°F), but not considered excessive in so far as hazard from fire or damage to table top is concerned. Stove was substantially constructed. Failed proof-voltage test. **3**

Knapp-Monarch, Cat. No. 15-508 (Knapp-Monarch Co., Bent Ave. and Potomac St., St. Louis) $22.50. A.c. only. Weight, 14.6 lb. 6 in. high, 18½ in. wide, 10 in. in depth. Chrome-plated sheet-steel top, white-enameled sheet-steel sides. Heating elements, embedded in cast-iron plate; plate surfaces were flat and level. Power input in watts, 1200, 1200 (1650, but see text). Efficiency of heating units, below average. Heat controlled by single 13-position switch which was considered somewhat confusing to use for the average user of a small stove, although its marking was satisfactory. Temperatures of end sections, excessive; of control knob and table top, satisfactory. Stove was well constructed and nicely finished. Leakage current, 5.8 ma., excessive, and considered dangerous from shock-hazard point of view. **3**

MOTOR OILS

THE inclusion of various additives in motor oil, a practice adopted in recent years by most refiners, has greatly complicated the problem of testing the kinds and grades of oils used for lubricating automobile engines. For this reason, and also because of CR's view that for normal driving on most cars regular oils containing neither inhibitors nor detergent additives are satisfactory, very little work has been done by CR on automobile engine oils in recent years. Further, we have found no evidence that premium or heavy-duty oils give promise of extending to any significant degree the life of automobile engines or of making them more immune to troubles than in the era, only a few years back, when additives were not commonly used in automobile oils, but were reserved for the special problems of high-speed heavy-load truck operation and of diesel equipment. Very recently the situation has been changed, through *Chevrolet's* and *Buick's* recommending the exclusive use of heavy-duty oils for their cars, in their 1951 instruction manuals. It is believed this recommendation is meant to take care of difficulties with hydraulic valve lifters, whose operation is adversely affected by the formation of sludge in the oil rather than because any particular improvement is expected in the operation of the engine as a whole through use of additives in the oils. *Nash* and *Packard* manuals also include qualified recommendations for use of premium-grade oils in their cars.

CR's policy has always been that, where disregard of the manufacturer's specific recommendations for his product would invalidate the warranty, the consumer, for his own protection, should follow the manufacturer's instructions. This does not, of course, mean that the manufacturer's advice is always sound; indeed, there have been many instances in the past where advice regarding care or use of their products have proved to be ill-founded. For example, for many years it was standard practice for the manufacturers to recommend changing of oil every 1000 miles; CR has repeatedly discussed this as unnecessary and uneconomical in operation of a car under normal or usual conditions. Several automobile manufacturers are content to have oil in their engines changed every three or four thousand miles. Even that recommendation is probably on the conservative side, because the manufacturer must allow for a wide range of operating conditions in the use of cars of his make.

As heavy-duty oils (premium type when heavy-duty oils are not available) are required under the instructions published by *Chevrolet*, the largest-selling car in the country, and as most *Chevrolet* owners will use such oils, it was decided to run a preliminary group of tests on a few well-known oils containing additives.

A list of the various tests made follows; because of space limitations, none are discussed in any detail.

Flash Point; Fire Point; Gravity; Pour Test; Color; Viscosity at 100°F; Viscosity at 130°F; Viscosity at 210°F; Conradson Carbon Residue; Ash Content; Neutralization Number; Viscosity Index; Refractive Index; Infra-Red Absorption Spectra.

Underwood Test

Another important test is the Underwood; this subjects the oil to conditions closely paralleling those to which it is exposed in one phase of engine lubrication. The oil is subjected to a high temperature while in a finely dispersed form. This test requires the determinations of viscosity at temperatures of 100°, 130°, and 210°, viscosity index, Conradson carbon residue, ash content, and neutralization number. These were made on the original oil, and after 10, 15, and 20 hours of the test. Determinations were also made for percentage naphtha insoluble (sludge), chloroform soluble but naphtha insoluble (varnish); percentage total material soluble in chloroform is also determined together with the percentage increase in viscosity at 130°, each after 10, 15, and 20 hours. The loss of weight of bearings of cadmium-silver and copper-lead at the end of 20 hours is determined.

Sohio Corrosion Test

In this test, the oil is subjected to conditions in which a rotating shaft is in contact with bearing metal in the presence of catalysts, air, and elevated temperature. (This test correlates with the 72-hour *Chevrolet L-4* engine test.) Measurements are made on the oil after exposure to test conditions, viscosity at 100° and 210°, Conradson carbon content, ash content, neutralization number, naphtha insoluble matter. The bearing loss in milligrams per square centimeter is also determined.

Thin Film Detergency Test

This test determines the cleaning action of the oil. In this test, 100 cubic centimeters of the oil are recycled for 5 hours at a rate of 50 cubic centimeters per hour, at a temperature of 500°F, after which determinations are made of the amount of material insoluble in naphtha (the lower this amount, the cleaner the engine), the amount of

material insoluble in naphtha but soluble in chloroform (which gives an indication of the tendency of the oil to cause varnish deposits), and the amount of material insoluble in both naphtha and chloroform but removable by wiping.

Wear Test on a Precision Four-Ball Wear Tester

In this test, oils showing the smallest wear spot diameter and the largest load carrying capacity are considered to have the best wear prevention properties. Anyone who wishes to know more about these tests and their significance may find information of value in the article in the September 1951 issue of CONSUMERS' RESEARCH BULLETIN.

Additional tests were made in order to check certain advertising claims by one or two manufacturers. Macmillan, for instance, widely advertised that by changing to their brand of oil the average motorist would get 8 percent more usable power from the same amount of gasoline which would result in an average of 20 extra miles per tankful of gasoline. The validity of this claim was checked by comparing *Macmillan* oil with two other oils, chosen as representative of the better oils, in a fuel consumption test for 8 hours using a single-cylinder test engine and by determination of the coefficient of friction using two different bearing loads, and with oil temperatures of 100°, 130°, and 210°F. The results of these tests are shown in Table I.

It will be noted that at 130° and 210° with a load of 2 kilograms, the *Macmillan* brand gave a slightly lower coefficient of friction than the other two oils with which it was compared. This it is believed might well be attributed to its somewhat lower viscosity at the two temperatures named rather than to any other or special characteristic of the oil itself. With a 7-kilogram load, *Macmillan* showed a slightly higher coefficient of friction at 100° than the other two oils. At 210° it had a somewhat higher coefficient than *Permalube*.

The fuel consumption when *Macmillan* oil was used was approximately 6 percent less than that with *Allstate*, and 8 percent less than that with *Permalube*. It would appear the saving simply reflected the lower viscosity of the oil rather than any less familiar property. Such advantages as may be gained by use of an oil with a viscosity closer to the lower SAE limit than the other oils is offset by the viscosity index of *Macmillan Ring-Free* (which measures the degree of variation of viscosity at different temperatures). Relative constancy of viscosity is desirable.

It will be unwise to begin using a premium-grade or heavy-duty grade oil in an engine in which regular-grade oil has been used over a considerable period. Serious harm may be done to an engine by changing from a non-detergent oil to a detergent oil if a substantial amount of sludge has accumulated. The detergent oil may loosen the deposits to such an extent that they will be too great in amount for the oil to hold the material in suspension. Stoppage of the lubricating system may thus occur at one or more points, with faulty operation of the engine or damage to bearings.

The following ratings of oils are based on the merits of the respective oil, as determined by CR's tests, and with the exception of *Sunoco Mercury Made*, which is a regular-grade oil, the use of the oils is recommended only when the manufacturer of your car recommends the exclusive use of a premium-grade or heavy-duty grade oil, as some of the automobile manuals do, for this year's cars.

Premium and Heavy-Duty Oils

A. Recommended

Allstate Compounded Premium SAE 20 (Sears-Roebuck's Cat. No. 28 — 4522F) 26c per qt. in 5-gal. can in retail stores. Flash and fire points, satisfactory. Pour point, −5°F, which is not fully satisfactory for a car used where low winter temperatures prevail. One of the two best oils tested in chemical stability, based on Underwood Test. Satisfactorily passed Sohio Corrosion Test. The results obtained in the film detergency test were normal for a premium-grade oil, one not claiming detergency properties. Had best wear-prevention properties of oils tested, as determined by the *Precision* 4-ball wear tester. 1

Table I

	Coefficient of Friction						Fuel Consumption per hr. cc.'s
	Load 2 kg.			Load 7 kg.			
	100°	130°	210°	100°	130°	210°	
Macmillan	0.097	0.080	0.080	0.28	0.29	0.31	183
Permalube	0.097	0.090	0.090	0.26	0.29	0.26	199
Allstate	0.097	0.090	0.085	0.27	0.28	0.32	195

Havoline Custom-Made SAE 20-20W (The Texas Co.) 26c per qt. in 5-gal. can. Flash and fire points, satisfactory. Pour point, −30°F, very good. Chemical stability, good. Satisfactorily passed Sohio Corrosion Test. Had pronounced detergent properties, and excellent wear-prevention properties (corresponding to a heavy-duty oil). 1

Wards Vitalized Premium SAE 20-20W (Montgomery Ward & Co.) 25c per qt. in 5-gal. can in retail stores. Flash and fire points, satisfactory. Pour point, −10°F, not fully satisfactory where low winter temperatures prevail. Chemical stability, satisfactory. Satisfactorily passed Sohio Corrosion Test. Had pronounced detergent properties, and excellent wear-prevention properties (corresponding to a heavy-duty oil). 1

Permalube SAE 20-20W (American Oil Co.) 35c per qt. in 5-qt. can. Flash and fire points, satisfactory. Pour point, −5°F, not fully satisfactory for very cold weather. This brand and *Allstate Compounded Premium* showed the best chemical stability (Underwood Test). Satisfactorily passed Sohio Corrosion Test. The results obtained in the thin film detergency tests were normal for a premium-grade oil not claiming detergency properties. Had good wear-prevention properties. 2

B. Intermediate

Mobiloil Arctic SAE 20-20W (Socony-Vacuum Oil Co., Inc.) 30c per qt. in 5-qt. can. Flash and fire points, satisfactory. Pour point, −25°F, very good. Chemical stability, moderately good. Only fair in Sohio Corrosion Test; high loss of weight of test bearings. Had pronounced detergent properties, and excellent wear-prevention properties (corresponding to a heavy-duty oil). 2

Royal Triton-76 Union SAE 20W (Union Oil Co. of California) 45c per qt. Flash and fire points, somewhat low for the oil's viscosity, indicating possible increased consumption compared to oils of similar viscosity but higher flash and fire points. Pour point, −30°F, very good. Chemical stability, satisfactory. Satisfactorily passed Sohio Corrosion Test. Had pronounced detergent properties. Advertising has emphasized the "amazing anti-wear ingredient" in this oil which neutralizes the acid so that "engine wear due to acidity is no longer a problem." This can be seriously misleading to the casual reader of the advertising, since mere acid neutralizing property is by no means the only characteristic of an oil that determines engine wear; the wear-prevention properties of this oil as determined by CR's tests were only fair. 3

C. Not Recommended

Macmillan Ring-Free SAE 20 (Macmillan Petroleum Corp.) 35c per qt. This and *Sunoco Mercury Made* were not considered to be as good lubricants as the other oils examined. Viscosity index, low (undesirable). Flash and fire points, satisfactory. Pour point, −40°F, very good. Limited chemical stability. Naphtha-insoluble materials and increase in carbon residue after 20 hr. in Underwood Test were high (undesirable). Only fair performance on Sohio Corrosion Test, because of limited chemical stability, although weight loss of bearings was small. Had limited detergent properties and low wear-prevention properties. For discussion of claims of increased gasoline mileage, see text. 3

Regular Grade Oil

C. Not Recommended

Sunoco Mercury Made SAE 20 (Sun Oil Co.) 30c per qt. (around 20c per qt. in 2-gal. cans). Viscosity index, very low (undesirable). Flash and fire points, low (undesirable). Pour point, −25°F, satisfactory. Chemical stability, poor. Performance only fair on Sohio Corrosion Test. Had limited detergent properties. Had good wear-prevention properties, but the value of this is offset in part at least by the oil's limited chemical stability. Naphtha-insoluble materials and carbon residue after 20 hr. were high. 1

Off the Editor's Chest

(*Continued from page 2*)

ment officials as a means of eliminating unemployment of members of politically-powerful unions and of putting more money into the hands of a large number of prospective purchasers who will, it is assumed, promptly take up the slack in retail buying. The warehouses now bulging with supplies will then be unloaded without any markdown of prices, and textile mills and other factories operating on a short work week will be put to work on government orders. The expansion of government spending on defense orders will, of course, have an inflationary effect; official warnings will have been validated; and the need for further controls and of rationing will be indicated. That is the picture to be gathered from the financial and business sections of the daily newspapers, trade journals, and newsletters.

The intention of the federal government to use defense orders as a technique for filling the economic vacuum engendered by determined consumer sales resistance represents an economic policy that in the 1930's was denounced in newspapers and magazines, from the pulpit and in the political arena, as reprehensible and morally corrupt, a device for maintaining the profits of big business. When this practice of using more production to fill a vacuum in employment and to bolster up a declining economy was used in Germany before World War II, the American press could hardly find language severe enough to characterize those who would, in such a ruthless manner, make economic pawns of the citizens. The opprobrium attached to munitions-making by the term "merchants of death," evolved by shrewd left-wingers manipulating the

investigations of the Nye Committee in 1934 in the United States, was swelled to such magnitude by articles in reputable journals like Fortune, that manufacturers in the United States wanted nothing to do with the making of munitions. As a matter of fact, U. S. military leadership has credited the phrase "merchants of death," in effect, with seriously hindering scientific development of munitions for World War II.

Consumers in this country, particularly the men and women who were in service overseas during the last war, are quite convinced that the American way of life and all that it stands for has no equal anywhere in the world. They are, therefore, in favor of guarding our national safety by building and maintaining a strong defense. Current revelations of shameful wastes in procurement and allocation of munitions, graft and corruption in high places, however, are beginning to lay the groundwork for suspicion that defense production and expenditures are being used for other purposes than simply the defense of this country from possible invasion. Tax-conscious consumers are not sure as yet just what these purposes are, but their "wait and see" attitude on making important purchases indicates a refusal to be manipulated as economic pawns of an all-powerful central government. Those in charge of ordnance and procurement for the armed services will view with apprehension the possibility that a slogan equal in inhibitive effectiveness to the phrase "merchants of death" may again be evolved and be given widespread acceptance. This time, however, it will be applied to the bureaucrats rather than the businessmen, who on the whole have shown a commendable desire to balance their productive activities wisely and conscientiously between reasonable requirements for defense and the needs of consumers.

Consumers have no fair-haired political favorite, as Labor does, to threaten complete non-cooperation or cessation of activity if their demands to be taken care of are not complied with. They are inclined to be patient and forbearing. It would, however, be a pity if the bureaucrats were to misread this tolerance for indifference to high prices, scarcity, and ever-mounting taxes. The left-wingers are again in a position of wishing to weaken America in order to strengthen the Soviet Union, and the left-wing slogan-coiners may again utilize their effective propaganda power in the press, the pulpit, and the movies, as they did in the days of the Nye Committee, if a situation is created on which they can effectively capitalize. The administration would do well to remember what public opinion did to those in a previous era who were accused of substituting the raising of armies and the building of weapons of war for the normal economic activities of the nation that provide consumers with products for daily living.

Dampness in Basements

CR receives many letters from people who wish to know what to do about dampness in their basement from water coming through basement walls or floor. A great many persons find that keeping their basement dry presents real problems. Unfortunately, they are deceived by trade advertising for various paints and coating materials which give the impression that by use of that type of product — of the right brand — the problem of wet or damp basement will readily be solved. This, of course, is wholly incorrect, for as was shown in CONSUMERS' RESEARCH BULLETIN, May 1946, the promoters of these products greatly exaggerate the benefits to be achieved by their use, and as a rule, very little help can be gotten by applying one of them to the basement walls. Unfortunately, this is the sort of problem which, if we were to attempt to give solutions that would apply to all or most of the practical situations met in the field, would require not a letter in reply but a book, or at the very least a rather long article.

The trade journal, Practical Builder, has recently printed an article on Prevention of Dampness in Basements, taken from Technical Bulletin No. 14, issued by the Housing and Home Finance Agency; Technical Bulletin 14, we are informed, will be available to those who wish to buy it, at a charge of 20 cents, from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. The article appears on pages 15-21, and the same issue includes also a 5-page well-illustrated discussion of rat-proof construction of new dwellings. This bulletin, incidentally, does not even mention as a possible solution for dampness or leaky walls in basements the use of a coating of any of the widely sold coating materials advertised for the purpose in newspapers and magazines, or for sealing a "porous masonry surface." (They are variously advertised for "waterproofing," "leakage proofing," "seepage proofing," "damp-proofing," "moisture proofing," or "sealing" of basement and other walls.) The well-illustrated, 28-page U.S. Department of Agriculture Farmers' Bulletin No. 1572 (10 cents from Superintendent of Documents) also makes no reference of any kind to damp-proofing of cellars by use of any proprietary or equivalent waterproofing coats.

A Battery Additive or "Improver"

IN CONSUMERS' RESEARCH BULLETIN of February 1951, there was a brief item on "Battery Improvers," which dealt specifically with a product called *Duble Power*. Since that time, a number of our readers have requested information on still another product sold under the name *Sav-A-Battery*. An analysis of *Sav-A-Battery* indicates that the product consisted of approximately the following: magnesium sulfate, 13.2%; sodium sulfate, 75%; trisodium phosphate, 1.4%; sodium carbonate, 0.7%. The sulfates as present in *Sav-A-Battery* are the substances characteristically found in so-called battery improvers.

The makers of *Sav-A-Battery* have asserted many advantages for their product, including claims that: its use will insure quicker starting, increased power, prolonged battery life, prevent overheating of battery, restore life to used batteries and eliminate dead batteries. The Federal Trade Commission has decided that the claims made in such advertising are "false, misleading and deceptive," and that the product "has no beneficial effect in the preservation, operation or maintenance of lead acid storage batteries." CR's readers are advised to give no weight to claims for chemical substances asserted to "save" or "improve" or "increase the life" of a storage battery until such time as products for this purpose have been tested and found effective *by responsible technical authorities*. As previous CONSUMERS' RESEARCH BULLETINS have pointed out, it is most unlikely that any preparation advertised for this use will do what the manufacturers claim for it.

Abridged Cumulative Index of Previous 1951 Consumers' Research Bulletins

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†indicates that listings of names or brands are included.

RATINGS of MOTION PICTURES

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Cue, Daily News (N.Y.), *The Exhibitor, Harrison's Reports, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency List, Newsweek, New York Herald Tribune, New York Times, Parents' Magazine, Release of the D.A.R. Preview Committee, Reviews and Ratings* by the Protestant Motion Picture Council, *Successful Farming, Time, Times Herald* (Washington, D.C.), *Variety* (weekly), *Weekly Guide to Selected Motion Pictures* (National Board of Review of Motion Pictures, Inc.).

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), or C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Technicolor, Cinecolor, Trucolor, Magnacolor, Vitacolor, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
sci—science fiction
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		
—	9	3	**Abbott and Costello Meet the Invisible Man**	*com A*
—	1	4	**According to Mrs. Hoyle**	*mel A*
2	6	6	**Ace in the Hole**	*mel A*
—	5	7	**Alice in Wonderland (Bunin)**	*fan-c AYC*
2	9	5	**Alice in Wonderland (Disney)**	*mus-car-c AYC*
—	4	10	**Along the Great Divide**	*wes AYC*
—	4	1	**Angelo**	*war-dr A*
—	9	4	**Apache Drums**	*wes-c AYC*
—	—	5	**Appointment with Crime**	*cri-mel A*
—	13	1	**Appointment with Danger**	*cri-mel A*
—	6	8	**As Young as You Feel**	*com A*
—	4	7	**Belle Le Grand**	*mel A*
—	10	4	**Best of the Badmen**	*wes-c AYC*
—	4	1	**Big Gusher, The**	*mel AYC*
—	7	9	**Bird of Paradise**	*dr-c A*
2	9	6	**Brave Bulls, The**	*dr A*
4	9	1	**Bright Victory**	*war-dr AYC*
1	4	—	**Browning Version, The**	*dr A*
3	12	1	**Bullfighter and the Lady**	*dr A*
2	7	—	**Captain Horatio Hornblower**	*war-mel-c AYC*
—	1	5	**Casa Manana**	*mus-com A*
2	7	2	**Cattle Drive**	*wes-c AYC*
—	8	4	**Cavalry Scout**	*wes-c A*
—	3	3	**China Corsair**	*cri-mel A*
—	6	9	**Circle of Danger**	*mys-mel AYC*
—	4	9	**Comin' Round the Mountain**	*com A*
—	—	3	**Crossroads of Passion**	*war-mel A*
—	3	2	**Crosswinds**	*adv-c A*
—	2	4	**Cuban Fireball**	*mus-mel A*
—	—	3	**Cyclone Fury**	*mus-mus AYC*
—	2	4	**Dakota Kid, The**	*wes AYC*
—	2	2	**Dance of Life**	*doc A*
—	—	5	**Danger Zone**	*mys-mel A*
—	1	3	**Darling, How Could You!**	*com A*
3	5	3	**David and Bathsheba**	*dr-c A*
—	5	10	**Dear Brat**	*com A*
—	1	5	**Doctor, Beware!**	*com A*
—	4	1	**Dream Ballerina**	*dr AYC*
2	9	2	**Emperor's Nightingale, The**	*fan-c AYC*
—	2	1	**Exchange Girl**	*com AYC*
1	11	5	**Excuse My Dust**	*mus-com-c AYC*
—	4	8	**Fabiola**	*hist-mel A*
—	4	8	**Fat Man, The**	*cri-mel A*
—	3	3	**Father Takes the Air**	*com AYC*
2	13	3	**Father's Little Dividend**	*com A*
—	3	6	**Fighting Coast Guard, The**	*war-mel AYC*
—	1	5	**Fingerprints Don't Lie**	*cri-mel A*
1	10	1	**First Legion, The**	*dr A*
—	5	10	**Five**	*dr A*
—	1	7	**Flame of Stamboul**	*mys-mel-c A*
1	4	1	**Flying Leathernecks**	*war-mel-c AYC*
—	14	4	**Follow the Sun**	*biog-dr A*
—	4	4	**Footlight Varieties**	*mus-com A*
—	5	2	**Force of Arms**	*war-dr A*
—	2	4	**Fort Savage Raiders**	*mus-wes A*
—	8	4	**Fort Worth**	*wes-c A*
—	8	6	**Four in a Jeep**	*war-mel A*
3	13	1	**Fourteen Hours**	*doc-mel A*
2	11	3	**Francis Goes to the Races**	*com AYC*
2	12	—	**Frogmen, The**	*war-mel AYC*
—	—	5	**Fugitive Lady**	*mel A*
—	2	6	**Fury of the Congo**	*mel AYC*
—	3	1	**Gay Lady, The**	*mus-com-c A*
—	2	5	**Ghost Chasers**	*mel AYC*
—	3	2	**G.I. Jane**	*mus-com AYC*
3	12	1	**Go for Broke**	*war-dr AYC*
6	4	2	**God Needs Men**	*dr A*
—	7	8	**Goodbye My Fancy**	*dr A*
4	10	2	**Great Caruso, The**	*mus-biog-c AY*
—	2	5	**Gunplay**	*wes AYC*
—	4	9	**Guy Who Came Back, The**	*dr A*
—	2	3	**Gypsy Fury**	*dr A*
—	5	9	**Half Angel**	*com-c A*
—	7	4	**Happy Go Lovely**	*mus-com-c AYC*
—	8	5	**Hard, Fast and Beautiful**	*dr A*
1	8	7	**He Ran All the Way**	*mel A*
—	6	2	**Heart of the Rockies**	*mus-wes AYC*
—	2	6	**Her First Romance**	*com AY*
2	3	1	**Here Comes the Groom**	*com A*
—	5	—	**Hills of Ireland**	*doc-c AYC*
—	3	2	**His Kind of Woman**	*mel A*
—	10	5	**Hollywood Story, The**	*cri-mel A*
—	2	4	**Home Town Story**	*dr AYC*
—	1	8	**Hoodlum, The**	*cri-mel A*
—	7	10	**House on Telegraph Hill**	*mys-mel A*
—	—	4	**Hurricane Island**	*adv-c AYC*
—	11	2	**I Can Get It for You Wholesale**	*dr A*
1	11	4	**I Was a Communist for the FBI**	*mel AYC*
—	6	7	**I Was an American Spy**	*mys-mel A*
—	4	3	**In Old Amarillo**	*mus-wes AYC*
—	2	14	**Inside Straight**	*mel A*
—	7	10	**Inside the Walls of Folsom Prison**	*mel A*
—	2	4	**Insurance Investigator**	*cri-mel A*
—	4	4	**Interrupted Journey, The**	*mel A*
—	5	4	**Iron Man**	*mel A*
—	—	—	**Isle of Sinners (See God Needs Men)**	
3	4	—	**Jim Thorpe, All American**	*biog A*
—	1	3	**Joseph Schmidt Story, The**	*mus-dr A*
—	6	4	**Jungle Headhunters**	*trav-c A*

A	B	C		
—	3	5	**Katy Did It**	*com A*
—	2	3	**Kentucky Jubilee**	*mus-com A*
—	10	4	**Kind Lady**	*mys-mel A*
5	10	2	**Kon-Tiki**	*doc AYC*
—	2	3	**Krakatit**	*sci A*
—	3	2	**Lady and the Bandit, The**	*adv A*
—	4	3	**Lady Paname**	*com A*
—	1	4	**Last Illusion, The**	*war-dr A*
—	9	4	**Last Outpost, The**	*mel-c A*
—	5	7	**Law and the Lady, The**	*mel A*
1	7	10	**Lemon Drop Kid, The**	*mus-mel A*
—	4	2	**Let's Go Navy**	*com AYC*
—	10	6	**Lightning Strikes Twice**	*mys-mel A*
—	1	4	**Lilli Marlene**	*war-mel A*
—	1	2	**Lion Hunters, The**	*adv AY*
—	1	5	**Little Ballerina**	*dr AYC*
—	4	5	**Little Big Horn**	*wes A*
—	3	3	**Little Egypt**	*mel-c A*
—	13	3	**Long Dark Hall, The**	*cri-mel A*
—	9	2	**Lorna Doone**	*nov A*
—	1	3	**Lost Continent**	*sci A*
—	3	6	**Lovers of Verona, The**	*dr A*
—	9	8	**Lullaby of Broadway**	*mus-com-c A*
—	7	9	**"M"**	*cri-mel A*
—	5	7	**Ma and Pa Kettle Back on the Farm**	*com AYC*
—	1	5	**Magic Face, The**	*war-dr A*
2	11	2	**Magnet, The**	*dr AYC*
—	3	5	**Man from Planet X, The**	*sci AYC*
—	6	7	**Man with My Face, The**	*cri-mel A*
—	—	3	**Maniacs on Wheels**	*mel A*
—	4	2	**Marie of the Port**	*dr A*
—	4	5	**Mark of the Renegade**	*mel-c A*
—	8	2	**Mask of the Avenger**	*adv-c AYC*
—	—	3	**Mask of the Dragon**	*mys-mel A*
1	2	—	**Medium, The**	*mus-dr A*
2	6	4	**Meet Me After the Show**	*mus-com-c A*
—	2	1	**Mill on the Po**	*dr A*
—	1	6	**Million Dollar Pursuit**	*cri-mel A*
—	4	2	**Millionaire for Christy, A**	*com A*
—	3	3	**Minne**	*dr A*
—	3	4	**Miquette**	*com A*
—	1	5	**Missing Women**	*cri-mel A*
—	4	3	**Mister Drake's Duck**	*com A*
1	6	5	**Mr. Belvedere Rings The Bell**	*com A*
—	1	7	**Mr. Imperium**	*mus-dr-c A*
—	2	2	**Mussorgsky**	*mus-biog-c A*
—	2	2	**My First Love**	*dr A*
—	—	8	**My Outlaw Brother**	*wes A*
—	3	4	**My True Story**	*cri-mel A*
—	2	8	**Native Son**	*dr A*
2	1	—	**Nature's Half Acre**	*doc-c AYC*
—	2	3	**Naughty Arlette**	*com A*
—	6	3	**Navy Bound**	*war-dr AYC*
—	—	7	**Never Trust a Gambler**	*cri-mel A*
1	5	5	**New Mexico**	*wes-c A*
1	5	7	**Night Into Morning**	*dr A*
—	2	3	**Night Riders of Montana**	*wes AYC*
—	5	—	**No Highway in the Sky**	*mel A*
—	5	3	**No Place for Jennifer**	*dr A*
—	7	8	**No Questions Asked**	*mys-mel A*
—	2	3	**Oh, Amelia**	*com A*
—	4	7	**Oh! Susanna**	*wes-mel-c A*
6	6	—	**Oliver Twist**	*nov A*
3	6	2	**On Moonlight Bay**	*mus-com-c AYC*
—	3	2	**On the Loose**	*dr A*
2	10	5	**On the Riviera**	*mus-com-c A*
—	7	5	**Only the Valiant**	*hist-wes A*
—	8	2	**Painted Hills, The**	*mel-c AYC*
—	—	4	**Pandora and the Flying Dutchman**	*fan-c A*
—	6	2	**Passage West**	*wes-c A*
—	3	11	**Peking Express**	*mel A*
2	6	3	**People Will Talk**	*dr A*
—	4	3	**Pickup**	*dr A*
—	2	4	**Pier 23**	*cri-mel A*
—	4	3	**Pistol Harvest**	*wes AYC*
3	2	2	**Place in the Sun, A**	*dr A*
—	5	3	**Pool of London**	*soc-mel A*
—	2	3	**Prince of Peace, The**	*dr-c AYC*
—	11	5	**Prince Who Was a Thief, The**	*adv-c A*
—	5	10	**Prowler, The**	*cri-mel A*
—	3	13	**Quebec**	*war-mel-c A*
—	6	2	**Queen for a Day**	*dr A*
—	4	10	**Raton Pass**	*wes A*
—	1	3	**Rats of Tobruk, The**	*war-dr A*
—	—	3	**Red Angel, The**	*cri-mel A*
—	2	2	**Red Badge of Courage, The**	*war-dr A*
—	5	1	**Rhubarb**	*com A*
1	7	4	**Rich, Young and Pretty**	*mus-com-c A*
—	1	2	**Rivals, The**	*doc AYC*
—	2	2	**Roadblock**	*cri-mel A*
—	3	2	**Rodeo King and the Senorita**	*mus-wes A*
—	2	2	**Saddle Legion**	*wes AYC*
—	9	3	**Santa Fe**	*wes-c AYC*
—	—	5	**Savage Drums**	*mel AYC*
—	10	5	**Sealed Cargo**	*war-mel AYC*
—	—	5	**Secret Brigade**	*war-dr A*
—	8	4	**Secret of Convict Lake**	*cri-mel A*
1	2	5	**Secret of Mayerling, The**	*dr A*
—	2	4	**Secrets of Monte Carlo**	*cri-mel AYC*
—	3	1	**Seven Journeys**	*war-dr A*
6	8	2	**Show Boat**	*mus-dr-c A*
—	4	2	**Silver Canyon**	*wes-c A*
—	4	4	**Silver City Bonanza**	*mus-wes AYC*
—	5	11	**Sirocco**	*war-mel A*
—	2	1	**Skipalong Rosenbloom**	*com AYC*
—	2	7	**Smuggler's Gold**	*cri-mel AYC*
—	3	12	**Smuggler's Island**	*mel-c A*
—	4	3	**Snake River Desperadoes**	*wes AYC*
—	9	7	**Soldiers Three**	*war-com A*
1	4	9	**Sound of Fury, The**	*cri-dr A*
—	3	2	**St. Benny the Dip**	*dr A*
—	—	3	**Stolen Affections**	*dr A*
4	8	4	**Strangers on a Train**	*cri-mel A*
3	—	4	**Streetcar Named Desire, A**	*dr A*
—	7	7	**Strictly Dishonorable**	*com A*
—	2	3	**Strip, The**	*mus-mel-c A*
—	1	6	**Sword of Monte Cristo, The**	*mel-c AYC*
1	8	10	**Take Care of My Little Girl**	*dr-c A*
4	9	4	**Tales of Hoffman**	*mus-dr-c A*
—	3	3	**Tall Target, The**	*mel AYC*
—	5	3	**Tarzan's Peril**	*mel AYC*
2	9	4	**Teresa**	*dr A*
—	1	5	**Texans Never Cry**	*mus-wes-c AYC*
—	8	1	**Texas Rangers, The**	*wes-c AYC*
—	12	6	**That's My Boy**	*com A*
—	—	4	**They Were Not Divided**	*war-dr A*
—	10	3	**Thing from Another World, The**	*sci A*
—	5	7	**Three Steps North**	*mel A*
—	4	3	**Thunder in God's Country**	*mus-wes AYC*
—	3	3	**Thunder on the Hill**	*mys-mel A*
—	4	10	**Tokyo File 212**	*war-mel A*
—	10	—	**Tony Draws a Horse**	*com A*
—	1	3	**Treasure, The**	*com A*
—	—	—	**Try and Get Me (see Sound of Fury, The)**	
—	—	5	**Two Gals and a Guy**	*com AYC*
—	3	5	**Two of a Kind**	*cri-mel A*
1	9	5	**Up Front**	*war-com AYC*
—	1	5	**Victors and the Vanquished, The**	*war-dr A*
—	—	3	**Vienna Blood**	*mus-com A*
—	—	4	**Volcano**	*dr A*
—	10	—	**Warpath**	*mel-c A*
—	—	6	**Wells Fargo Gunmaster**	*wes AYC*
1	5	2	**When I Grow Up**	*dr AYC*
—	3	4	**When the Redskins Rode**	*wes-c A*
—	4	3	**Whirlwind**	*mus-wes-c AYC*
1	5	3	**Whistle at Eaton Falls, The**	*soc-dr AY*
—	—	5	**Wicked City, The**	*dr A*
—	1	3	**Women Without Names**	*war-dr A*
—	4	2	**Wonderful Times**	*doc A*
—	3	1	**Yes Sir, Mr. Bones**	*mus-com AYC*
—	1	3	**Yukon Manhunt**	*mel AYC*

The Consumers' Observation Post

(Continued from page 4)

HIGHER PRICES FOR SHRIMP sold in Mississippi were finally secured by an A. F. of L. Union when 100 fishermen were forced to join the Gulf Coast Shrimpers' and Oystermen's Association. It seems that these hardy souls believed in competition and were selling shrimp below the price set by the union, according to Business Week. When the union closed all shrimp houses by a strike, the 100 fishermen were forced to surrender to monopoly pressure. We shall be interested to see whether either the state or federal governments will take any action to prevent such price-fixing activities.

* * *

ANTI-FREEZE containing calcium chloride is quite unfit for use in an automobile radiator because it causes iron and other metals with which it comes in contact to disintegrate, to corrode, and slough off. Automotive News has reported the case of a gasoline station which purchased $975 worth of anti-freeze represented by the manufacturer's salesman as essentially the same as Prestone, with an ethylene glycol base. After delivery had been made, the purchaser became suspicious and had a chemical analysis made which indicated that the product was essentially calcium chloride. In a trial of the suit filed by the purchaser to get his money back, the manufacturer's counsel contended that it had breached no guarantee and that the verbal statements of the salesman were not a valid guarantee. The higher court, however, ordered the manufacturer to take back the anti-freeze and return the original purchase price to the purchaser. It was fortunate for automobile owners in that section that the dealer was considerate enough of his customers to investigate the matter, and discovered the anti-freeze was a fraud before automobile owners had experimented with the product in their car radiators.

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FLUORIDATING PUBLIC WATER SUPPLIES in order to reduce children's tooth decay is being eagerly promoted by some public health officials, in spite of the fact that the effect of fluorine upon the liver and other internal organs, particularly in older people, has not been extensively investigated. Apparently the theory on which they are acting is that if a small amount of a certain substance is good for one section of the population everyone in a certain area must be made to take it. Recently one of the food trade journals reported that men in the Food and Drug Administration were of the opinion, unofficially, that not nearly enough scientific work had been done to establish the fact that fluoridated drinking water was absolutely harmless, particularly when fluoridated water is considered in relation to possible intake of fluorine from other scurces. There is also the danger that occasional unintended overdoses of fluoride will produce the disfiguring mottling of teeth that characterizes mouths of people in areas having a high fluorine content in the drinking water.

* * *

MEAT FOR THE TABLE is the title of a new bock by Professor Sleeter Bull, University of Illinois (published by McGraw-Hill Book Co., Inc., $4). It presents excellent advice, with illustrations, on how to recognize particular grades and cuts in the butcher shop, the food values of different varieties of meat, and suggests methods of cooking to obtain maximum satisfaction, particularly with the less expensive cuts. Information is also included on how to carve and how to freeze meat. The book is a most useful summing up of a wide range of information, and should be in every public and institutional library. Although it will be chiefly of interest to classes in nutrition, cooking, and foods, the economy-minded homemaker whose family's favorite food is meat will find that careful study of the book may enable her to save money and make a better selection.

* * *

NEW OR NEWLY TESTED:

Speedee Wallpaper Cleaner (Distributed by Dover Products Co., 3840 Fullerton Ave., Chicago 47). $1.50. Refills, 50c each. The device consisted of a red rubber sponge attached to a short wooden handle by a wire brace. Directions called for simply wiping the surface of the wall to be cleaned with the dry sponge. As the sponge became saturated with dirt, it was to be removed and washed with soap and water. Emphatic directions called for allowing it to dry overnight before re-using it. In actual tests, Speedee proved to do an effective job, but the short handle was a disadvantage since the person doing the cleaning was obliged to use a stepladder for the top of the wall and the ceilings. The sponge was quite easy to clean. The device is considered worthy of a B-Intermediate rating.

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PHONOGRAPH RECORDS

BY WALTER GRUENINGER

Please Note: In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended. Although nearly all new releases of serious music are heard, space narrows comment, generally, to items which merit high ratings.

Arriaga: *String Quartets Nos. 1* and *2*. Guilet Quartet. Concert Hall Society LP 1068. $5.95. Arriaga was a little known Spaniard who died at the age of 20 in 1826. His quartets are richly melodic, graceful, and inventive — akin to Mozart and Schubert. Beautifully played and well recorded.
Interpretation AA
Fidelity of Recording AA

Beethoven: *String Quartet No. 13* (Op. 130). Pascal Quartet. Concert Hall Society 1210. $5.95. One of the great, last quartets. Penetrating performance but recording at times sounds pinched and harsh. And I make substantially the same criticism of this group's record of the Beethoven *Quartet No. 12* which, in addition, has a swishing surface and of Chausson's elegant *Concerto for Violin, Piano and String Quartet* played by this group, plus Kaufman and Balsam.
Interpretation AA
Fidelity of Recording A

Boccherini: *Sinfonia Concertante in G Major*. London Baroque Ensemble under Haas and *String Sextets*, Op. 24, No. 1, and Op. 41. Pougnet, Sturdy, Danks, etc. Westminster LP 5077. $5.95. A representative collection of the bigger chamber works of Boccherini, greatest early Italian instrumental composer and Haydn's most serious rival. The performers play with a thorough understanding of the music. Excellent reproduction with the *Sinfonia Concertante* recorded at a greater distance than the sextets. **Interpretation AA**
Fidelity of Recording AA

Brahms: *Quartet No. 1*. Budapest String Quartet. Columbia LP 2191. $4. Rich sounding, passionate, tragic work. Remarkable performance and wide range, spacious recording. Superior on both counts to Westminster LP 5084, Amadeus String Quartet. **Interpretation AA**
Fidelity of Recording AA

De Falla: *Seven Popular Spanish Songs* and *Songs of Miguel Sandoval*. Lydia De Ibarrando (mezzo). Columbia LP 2189. $4. Not since the remarkable performance of Conchita Supervia have I heard the exciting De Falla songs presented so well. Yet, Supervia's interpretations remain unequalled particularly as to contrast and color. Sandoval's songs (he plays the piano accompaniment on both sides of the record) are Spanish atmospheric and likely to please. Excellent recording. **Interpetation AA**
Fidelity of Recording AA

Gounod: *Faust*. Steber, Conley, Siepi, etc., under Cleva. 6 sides, Columbia LP Set 112. $16.35. Though incisive dramatic quality is frequently lacking, Gounod's pleasing salon-type melodies have made *Faust* a popular opera. This Metropolitan Opera Association production is a cut above the ordinary operatic set. Cleva conducts with spirit and the orchestra never sounded better. The great voices of the past are not matched, but there is a more than average level of excellence throughout the cast. Eleanor Steber as Marguerite sings the "Jewel Song" too heavily but does somewhat better from there on, though she is miscast. Conley as Faust is most dependable. Siepi as the Devil is not sinister enough. First rate recording. **Interpretation A**
Fidelity of Recording AA

Hanson: *Concerto in G Major for Piano and Orchestra*. Firkusny with the Eastman-Rochester Symphony Orchestra under Hanson & **Grieg:** *Holberg Suite*. Eastman-Rochester Symphony Orchestra under Hanson. Columbia LP 4403. $5.45. Strange coupling with little in common. The concerto gets a definitive performance and the *Holberg Suite* comes off nearly as well. Quite satisfactory recording.
Interpretation AA
Fidelity of Recording AA

Mahler: *Kindertotenlieder*. Kathleen Ferrier (contralto) with the Vienna Philharmonic Orchestra under Walter. Columbia LP 2187. $4. This deeply moving song cycle is dramatically sung by the rich voiced Miss Ferrier and superlatively performed by the orchestra. Even better than Lorri Lail's excellent recording for Urania. **Interpretation AA**
Fidelity of Recording AA

Monteverdi: *Madrigals for Five Voices* (Book I complete). Roger Wagner Madrigal Singers under Wagner. Allegro LP 3020. $5.95. Soothing, restful music of the 16th century, these 21 madrigals. Fresh voices, superb musicianship. Transparent recording.
Interpretation AA
Fidelity of Recording AA

Strauss: *Rosenkavalier Suite*. Robin Hood Dell Orchestra under Dorati. RCA Victor LP X48. $4.67. The music is outstanding — lush, lyric. Wonderfully conveyed by the performers. Recording, though satisfactory, does not supply the richness needed for perfection. Yet, I enjoyed this disk.
Interpretation AA
Fidelity of Recording A

Tchaikovsky: *Nutcracker Suite* and *Suite* from *The Swan Lake*. French National Symphony Orchestra under Desormiere. Capitol LP 8140. $4.98. Top drawer ballet music. Played cautiously and recorded with too little bass.
Interpretation A
Fidelity of Recording A

American Bird Songs — Volume 2. 10 sides, 78 rpm. Vinylite disks issued by the Comstock Publishing Company, Ithaca, N.Y. $10.50. Fifty-one singing birds recorded in their native habitats by Drs. Kellogg and Allen of Cornell University — bluebird, phoebe, red-eye towhee, whistling swan, hooded warbler, etc. Volume I has long been a favorite of bird lovers and technically this one is even better. An announcer identifies each bird before you hear it sing.
Interpretation AA
Fidelity of Recording AA

Margarete C. Klose in a Recital (contralto). Urania LP 7017. $5.95. Broad, dramatic, impressive singing of a group of Schubert lieder and arias by Monteverdi, Handel, and Gluck. Voice well recorded. Accompaniment lacks widest range.
Interpretation AA
Fidelity of Recording A

OTHER LP'S HIGHLY RECOMMENDED
(for interpretation and for fidelity)

ALLEGRO — **Bach:** *Partita* with the *Overture in the French Style* in B Minor. Rosalyn Tureck (piano) on 114.
Byrd: *Mass for Five Voices* sung by The Nonesuch Singers & *Organ Music* played by John Remes King on 3021.

COLUMBIA — *Saxophone Contrasts*. Al Gallodro (sax) on 6188.

EMS — **Milhaud:** *Sonata* for Flute, Oboe, Clarinet, and Piano and *Le Cheminee Du Roi Rene* Suite for Woodwind Quintet and *Pastorale* for Oboe, Clarinet, and Bassoon. Baron, Gomberg, Shapiro, etc., on 6.

WESTMINSTER — **Telemann:** *Trio in E Minor, Quartet in D Minor* & **Loeillet:** *Trio Sonata in B Minor*. Wittgenstein (flute), Hubert (cello), Marlowe (harpsichord), Brenner (oboe), etc., on 5076.
French Songs of the 16th and 17th Centuries & English Songs of the 17th Century. Hugues Cuenod (tenor) on 5085.

$1.90